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THE TRANSACTIONS OF THE LINNEAN SOCIETY OF LONDON.

REPORT ON THE BOTANY OF THE WOLLASTON EXPEDITION TO DUTCH NEW GUINEA, 1912-13.

By HENRY N. RIDLEY, C.M.G., M.A., F.R.S., F.L.S.

ASSISTED BY MESSRS. E. G. BAKER, S. MOORE, H. F. WERNHAM, C. H. WRIGHT, AND OTHERS.

WITH AN INTRODUCTION BY MR. C. B. KLOSS.

LONDON:

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ERRATUM.

Page 226, line 5, for "*macrantha*" read "*macranthoides*."

TRANSACTIONS

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THE LINNEAN SOCIETY.

I. *Report on the Botany of the Wollaston Expedition to Dutch New Guinea*, 1912–13.
By HENRY N. RIDLEY, *C.M.G., M.A., F.R.S., F.L.S.* *Assisted by* Messrs. E. G. BAKER, S. MOORE, H. F. WERNHAM, C. H. WRIGHT, *and others. With an Introduction by* Mr. C. B. KLOSS.

(Plates 1–6.)

Read 7th May, 1914.

THE experience of the Expedition sent by the British Ornithologists' Union in 1910–11 to New Guinea proved that it was not possible to reach the central range of Snow Mountains (Nassau Range) by way of the Mimika River. It appeared that the Utakwa River, about 50 miles to the east, offered a better prospect of success, and Mr. A. F. R. Wollaston, who had been a member of the first expedition, proposed to conduct another and to enter the country by that river. The Committee of the British Ornithologists' Union Expedition generously handed over to him the balance of their fund, and through the generosity of certain subscribers he was enabled to return in 1912. The object of this second expedition, which was organised and conducted by Mr. Wollaston, was to collect animals and plants, study the ethnology of the natives and explore, so far as possible, the geography of the part of the Nassau range drained by the Utakwa River. Mr. Wollaston was fortunate in securing the services of Mr. C. Boden Kloss, Assistant Director of the Museum at Kuala Lumpur, Federated Malay States, for the supervision of the zoological and botanical collections and the photographic work. The transport work was carried out by 74 Dyaks from Borneo, whilst five collectors, natives of Sarawak, were employed in collecting botanical specimens. The party was accompanied by an escort provided by the Netherlands East Indian Government, under

the command of Lieutenant (now Captain) A. Van de Water, and numbered in all 226 persons. A landing was made on the Utakwa River on September 18, 1912, and the expedition left the country on April 3, 1913.

An account of the expedition has been published in the 'Geographical Journal' (vol. xliii. 1914, pp. 248–268), from which I have taken some information, and Mr. Kloss has added to the present paper a short account of the track followed. The collections made by him, and brought down under great difficulties by the expedition, are the most extensive and important ones ever brought to this country from New Guinea.

Despite the large botanical collections made in Dutch and German New Guinea, and described by Dutch and German botanists, the number of new species and genera in proportion to the number of specimens collected is very large, there being about 500 new species and 8 new genera. This illustrates the extraordinary richness of the Papuan flora. The flora of British New Guinea has been more neglected than that of Dutch and German New Guinea; except for Forbes's collections on the Sogeri Mountains, which have not yet been fully worked out, and a small lot obtained by Macgregor and Giulianetti, no collecting of importance has been done there.

In working out this great collection I was assisted by Mr. E. G. Baker, who identified and described the Leguminosæ and Melastomaceæ, Mr. Spencer le Marchant Moore and Mr. Wernham, who took charge of the Gamopetalæ except the Utricularias, which I undertook myself. Mr. C. H. Wright has determined the Cellular Cryptogams, and Mr. Massee the Fungi, mostly parasitic on the dried flowering plants. I have also to thank Fleet-Surgeon Matthew for assistance and advice as to the Ferns, and Mr. Sprague and others of the Kew Staff for advice on various critical species. The field-notes as to colour were made by Mr. Kloss on the tickets. There being no locality-names known at the spots where the plants were collected, they are localised by the Camp number and altitude. Where such a locality is given as IX to XI, it signifies that the plant was collected *en route* between these two points.

Itinerary by C. B. Kloss, F.R.G.S.

Carstensz Peak, 15,964 ft. high and situated in 4° 5′ 50″ N. and 137° 12′ 50″ E., is somewhat west of north of, and about 62½ miles distant from, the mouth of the Utakwa River, where the expedition entered New Guinea. It is slightly the highest of several snowy summits which occur along the great mountain range that runs, speaking very broadly, east and west across this portion of the island, and has by far a larger area of snow than any other peak in the chain, while Mt. Idenburg, another snow summit, lies only some ten miles to the westward; so that the area of high land is greater in this locality than in any other part of New Guinea, which possesses the only equatorial snow-mountains between Africa and America.

Ranges of high mountains, with peaks rising to 11,400 ft., run more or less parallel to the Main Chain and 10–12 miles distant, while the foothills begin to rise from the coastal plain about 20–30 miles to the south of it.

The whole coastal plain in this region is low and marshy, and the steamers which transported the expedition anchored about 15 miles up the Utakwa River between banks covered with Nipah palms and swampy littoral jungle. The "Launch" or "Base Camp" was placed another 13 miles up stream on the right bank of the Setakwa, an eastern tributary of the Utakwa, in high forest growing on deep alluvial soil entirely devoid of rock and stones, but so little above the river-level that the bivouac, itself situated on the river-edge, was several times slightly flooded, and on these occasions the surrounding country was knee-deep under water. It is probable that during the rainy season, May to September, this region is often severely inundated.

Practically no plant-collecting was done here, as country of this nature, 60 miles to the eastward, had already been worked by the botanists of Dr. Lorentz's expeditions to Mt. Wilhelmina (*vide* A. F. Heerderschee, Nova Guinea: Résultats de l'Expédition. . . 1912–1913). The jungle swarmed with minute bush-ticks, and the after-effects of a walk in it were most unpleasant.

The next camp, "Canoe Camp," was situated at a spot which, for our purpose, was the head of navigation, though small canoes could probably be taken, if necessary, a few miles higher. This camp, 150 ft. above sea-level, was about 22 miles up the Setakwa from the "Launch Camp," and 34 miles from the sea in a direct line. Here the river ran in a bed of boulders and coarse gravel, with the banks on its eastern side 50–60 ft. in height, while the foothills began a couple of miles away: immediately behind the camp, however, the country was low-lying and swampy.

The overland journey began from this point, and camps were made thereafter a day's march apart: in the early stages these journeys were as much as six miles in length, but later, on the high slopes of Carstensz, they shortened to little more than two *.

Travelling from the Canoe Camp to Camp I, some 2¼ miles of swampy land were traversed before the foothills were met; thence for another 2¼ miles the route led up and down across gullies and ridges until Camp I was made at 500 ft.; perhaps 100 ft. lower than the highest ridge crossed. The camp was placed on the bank of a stony-bedded stream with some swampy land opposite.

Soon after leaving Camp I the route ascended a narrow ridge and continued along this until the next camp was made at a height of 1830 ft. For the last third of the march the track ran over sharp and broken limestone: the greatest height attained along this section was 1900 ft. The summits of the ridges followed were often only 4–5 ft. broad.

From Camp II the way led along a continuation of the limestone ridge already mentioned, then dipped down to a stream at 1600 ft., meandered through involved muddy country with many small brooks and limestone outcrops, and then ascended the side of a hill to Camp III at 2500 ft.

* These figures are taken from the route survey of the journey on a scale of 1:50,000, and are not the actual distances travelled, which were, of course, much greater, especially in the more broken parts of the mountains.

Camp III was situated on the southern slope of a range of foothills the summit of which, 3000 ft. high and half-an-hour's journey from the camp, was known to us as Observation Point: for from a clearing there, Mt. Carstensz and its snows (26 miles away) and the intervening country, together with the mountains west and east, from Tapiro Peak to the Linnæus Tops, were visible on clear mornings.

The hills culminating in Observation Point are to be regarded as mere outliers of the main mountain ranges, from which they are separated by valleys wherein run streams the beds of which probably in no case exceed 1000 ft. in altitude. But though of equal elevation with Camp VI *a*, where collecting was done later on, it will be seen that the flora of the two localities differs considerably. As pointed out, Camp III and Observation Point are practically detached from the main ranges, while Camp VI *a* lay well within the mountainous region. But the former, being the first depot camp on the route to the snows, was occupied for a considerable period, and possibly a fuller collection was made in its neighbourhood than elsewhere.

From Camp III a course was taken along the side of Observation Ridge and thence across gradually-falling, much-watered land with limestone outcrops to a river whence a watershed was reached, with a descent to a second river at 900 ft.; then up along high ridges and down to Camp IV, at 1100 ft. on the bank of the Utakwa River, which we had last been in touch with some distance below the Base Camp.

Four days' marching from the Canoe Camp had brought us to a point on the main stream some 14½ miles distant to the N.E., and situated at the foot of the frontal range.

From Camp IV to Camp V the frequently steep banks of the Utakwa River were followed for about 2¼ miles; then a route was taken for some distance up a tributary running between high precipices and steep banks: this was left for hills which carried the track up to 2500 ft., and a descent was again made to the Utakwa, where Camp V was placed at an altitude of 1775 ft., half a mile above a conspicuous landslip across the stream.

Between Camp V and Camp VI the march was kept as close to the river as possible; once or twice, as in the previous section, the way being taken through the water itself. The highest ground passed over was less than 150 ft. above the terminal camp, which was placed on a point contained by the Utakwa—now the Tsingarong—and the Kemarong, a western affluent, at a height of 2115 ft.

No systematic plant-work was done at Camp VI, the second depot, as it lay in a basin surrounded by steep hills; but at a subsidiary Camp, VI *a*, 3050 ft., on the western bank of the Tsingarong (which was followed from here onwards), collecting was carried on for some days. This camp was situated in one of several grassy clearings on a ridge.

A second Camp, VI *b*, 4475 ft., was later established on the shoulder of a ridge dropping to the Tsingarong and divided from VI *a* by broken country and several streams.

Finally, a third subsidiary Camp, VI *c*, was made still higher up the same ridge, to the westward of the route, at a height of about 5500 ft. . The site of this camp was only separated from the northern slopes of Mt. Venus, 8470 ft., by the gully of the Kemarong River, and was the first collecting locality to possess that flora and fauna which were found further on in the heart of the mountains at similar altitudes.

From VI *b* a descent was made down the northern side of the ridge to Camp VII, which observations by both aneroid and hypsometer place at 3585 ft.

From Camp VII we dropped to the River Nusalarong, 2960 ft., which has its source in the snows of Carstensz; this was crossed about $1\frac{1}{4}$ miles above its confluence with the Tsingarong, and the ascent was then made to a long north and south ridge dividing the two rivers, to which it falls steeply on either hand. A temporary Camp, VII *a*, was made at a height of 5430 ft. Several native villages were situated on the ridge, which has evidently been long occupied, and was largely covered with grass, bracken, and other secondary growths: portions of it bear the names of Winker-ibu and Bogger-ebok. At 6300 ft., the highest point of this march, where it broadens out, it is covered with oak and mixed forest densely clad with moss and reeking with moisture. Thence a steep descent led to a large, level inhabited clearing above the gorge of the Tsingarong, where Camp VIII was placed at a height of 4970 ft.

The journey beyond Camp VIII comprised an ascent across a ridge, a descent to a river (Bandarong), and then a rise through an old grassy clearing and much secondary growth to a ridge where Camp IX was placed in an inhabited clearing at 5610 ft.*: this was occupied as a temporary depot by some collectors and a guard while the rest of the journey to Mt. Carstensz was completed.

The inhabited area of the mountains traversed lay between Camps VII and IX, and the clearing that has taken place has considerably affected the flora there.

The track onward dropped about 800 ft. to the Bandarong River, which, coming from a direction west of north, joined the Tsingarong below Camp IX, and then ascended gradually up through the stream or else made detours to pass round the spurs, sometimes too steep to support other than scrub vegetation which overhung the river, until Camp X was made in dense mossy jungle at 6370 ft. A large-fruited pandanus occurred here and was eaten by the natives accompanying the expedition.

From Camp X the banks of the river were followed with a few detours until Camp XI at 8075 ft. was reached. This was placed on the boulders of the river-bed, and Casuarinas draped with moss were the dominant feature of the vegetation.

Above Camp XI the broad stony bed of the river was first followed and, when this was left, an open treeless slope densely clad with scrub was traversed to the comb of the ridge. This was ascended for some distance, and Camp XII was made along part of its narrow extent where cloud and rain obscured the forward view. The camp was

* All previous heights by aneroid; this and subsequent altitudes by hypsometer observations.

situated at 10,900 ft., and was the highest point at which trees were encountered, for though they occurred at slightly greater altitudes elsewhere, the remainder of the journey was made on slopes too rocky or steep to support large growths. The first naturally open country met with was between Camps XI and XII.

From Camp XII the western slope of the ridge was descended to the valley of the Nusulanarong, where Camp XIII was set at 10,300 ft. The low dense scrub which covered the sides of the ridge was thickly clad with moss, and the party traversed it over a network of roots and branches several feet above the ground.

With the exception of a small area of shrubs and small trees, 20 ft. high, in the centre, the valley was treeless; its northern and eastern slopes were dry, but the western area was swampy, and this was crossed before Camp XIV and the snows were reached. Scrub similar to that on the east clothed the western slopes above the bog to equal height: thence to Camp XIV, and almost to the edge of the snow, the steep rocky slopes of Carstensz were clad with moss of many brilliant colours and gradually diminishing small scattered shrubs; just below the snow-line the last flower met with was a daisy (*Myriactis*).

The expedition to Mt. Carstensz followed a river whieh took its source from the snows: we were therefore ascending all the time, yet, as a matter of fact, some of the earlier camps were placed at a higher level than those succeeding them, because the route there had frequently to be taken along the crest of the river-valley or across spurs which dropped abruptly into it. It was not until crossing the Bandarong (4800 ft.) beyond Camp IX that the journey, having penetrated the frontal range, became a steady ascent, and we had the feeling that we were really on the slopes of the main range.

These data will serve as an introduction to Mr. Ridley's analysis of the flora and his indication of its zones. Such zones, however, for the most part, must necessarily have very indefinite boundaries, for the mountainous country traversed was of a very confused and broken nature, and it was not until the main mass was reached that clear altitudinal zones could be traced.

The Botanical Regions of the Expedition.

(1) *The Coast Region.*—The country between the Base Camp and Camp I may be regarded as a coastal or lowland region rising from the sea-level to 500 ft. Here the forest was swampy and dense, and the flora was of a Malayan type with a few more distinctly Papuan plants.

(2) *The Foothill Area* from Camp I to Observation Point and thence to Camps IV, V, and VI, may be considered as submontane, for though the latter localities are well within the mountain region from which plants might descend to them, yet, on account of their low situation in the valley of the Utakwa, they should be included in this zone of 500 to

3000 ft. elevation. The country consisted of steep forest-covered hills. "The formation of the foothills," says Wollaston (Geogr. Journ., March 1914, p. 252), "is exceedingly complex. The ground on which the first depot camp was situated (about 2300 ft.) was a light-coloured limestone rock. A few miles to the south-east was a steep ridge, along the top of which was an outcrop of pure coral rock; and a few miles to the north-west of it the ridges between the various river-valleys appeared to be made entirely of boulders and gravel." The forest in this region was very dense, and the flora was typically Malayan. Here occurred the Anonaceæ, Garcinias, Olacineæ, and Icacineæ (except one species of *Gomphandra*), Sapindaceæ, Ampelideæ, *Eugenia* (one only of which ascended higher), *Barringtonia*, Leguminosæ, Melastomaceæ, *Gardenia*, *Ixora*, *Webera*, *Urophyllum*, *Nauclea*, *Maesa*, *Ardisia*, *Pisonia*, Myristicaceæ, Euphorbiaceæ, *Hoya*, *Aporuellia*, *Hemigraphis*, *Coleus*, *Conocephalus*, *Laportea*, *Oberonia*, *Phaius*, *Calanthe*, *Acanthephippium*, *Plocoglottis*, *Saccolabium*, *Cypripedium*, *Curculigo*, *Dioscorea*, *Burmannia*, *Gymnosiphon*, *Forrestia*, *Susum*, all the palms except one or two which ascended a little higher, *Freycinetia*, Aroids, *Cyperus*, *Hypolytra*, *Thysanolæna*, *Leptaspis*, *Lophatherum*, and *Centotheca*. Typically Papuan genera were *Dictyoneura*, *Antiaropsis*, *Faradaya*, *Ridleyella*, and *Eurycentrum*.

Tapeinosperma (New Caledonia), *Bourchardatia*, and *Chorizandra* are typically Australian, and *Juncus* alone represents the Palæarctic flora so abundant at higher altitudes.

(3) *The Frontal Mountain-belt*.—Between Camps VI *a* and X is situated the frontal mountain-belt; plants were obtained in it up to a height of 6300 ft., but it has summits rising another 5000 ft., so that the collections may be taken to represent the lower portion of the forested mountain-zone of the frontal range.

Here the *Begonia* and *Balsam* region extended from the slopes above Camp VIII to those beyond Camp IX, from 3000 to 6500 ft. The highest cultivated plots were seen in this region at 6000 ft., but on the less steep slopes of Mt. Venus, at 7000 and 8000 ft., cleared ground was seen in the distance. The cultivated plants were plantains, *Colocasia*, sugar-cane, ginger, and tobacco. Few weeds of cultivation were brought back by Mr. Kloss, but one might include as such *Oxalis corniculata*, *Nasturtium indicum*, *Cardiospermum Halicacabum*, *Crepis japonica*, *Dichrocephala*, *Ocimum*, *Kyllinga*, *Paspalum*, *Eleusine*, and some other grasses and sedges.

Characteristic of this zone were two species of *Viola*, *Drymaria*, *Hypericum*, *Evodia*, *Astilbe*, *Cremnobates* (a new genus of Legnotidæ), *Œnanthe*, *Palmeria*, *Debregeasia*, *Poæphyllum*, *Erica*, *Epiblastus* (ascending to 8000 ft.), *Cœlogyne*, *Tæniophyllum*, *Smilax*, *Dianella*, *Pollia*, *Scirpus chinensis*, *Imperata*, *Saccharum*, and *Ischæmum*. *Dodonæa*, usually a sea-shore or often sandy-country plant, was met with here, and rattans ceased at 4000 ft. elevation. Here it might be noticed that the Malayan element had much diminished and a considerable admixture of Palæarctic forms commenced to appear, viz., *Hypericum*, *Œnanthe*, *Galium*, *Gnaphalium*, *Viola*, *Lysimachia*, and *Ranunculus*.

(4) *The Main Range.*—Beyond Camp IX begins the traverse of the main range, and from this camp to Camp XI, Casuarina trees and violets were the most noticeable features. This is at an altitude of 6500 to 8000 ft. Wollaston writes: "Between 7000 and 8000 ft. the larger forest trees disappear, and their place is taken by *Pandanus* and *Casuarina.* At about the same altitude there is a marked increase in the number of herbaceous plants, particularly terrestrial orchids (*Giulianetta disticha*, *Pterostylis*), gentians, geraniums, and other plants of familiar appearance."

Above Camp XI lay the open country zone, and here, Mr. Kloss tells us, were most conspicuous orchids, a daisy (*Myriactis*), a geranium, a meadowsweet (*Astilbe*), everlasting flowers (*Anaphalis*), and rhododendrons. Mr. Wollaston writes: "Between 9000 and 11,000 ft., the most conspicuous plants are bushy vacciniums and rhododendrons of several species; these plants form a very dense bushy jungle always heavily overgrown with mosses which is very difficult to traverse. Among them grow up to about 10,500 ft., the curious pine-like trees of *Podocarpus papuanus.* Above 11,000 ft. the rocks become so steep that very few plants can grow at all; here and there, in the less precipitous places, a few rhododendron bushes are found up to about 13,000 ft.; above which the only plants found were a daisy (*Myriactis*) and a few grasses and mosses." Among the plants collected at this altitude are a certain number of Malayan genera which have crept up from the base; such are *Acronychia, Henslowia, Pilea, Elatostema, Cypholophus, Argostemma*, *Timonius*, *Spathoglottis*, *Ceratostylis*, *Phreatia*, and a number of representatives of such widely dispersed genera of orchids as *Dendrobium*, *Bulbophyllum*, and *Habenaria*, and of other plants such as *Rubus*, *Impatiens*, *Symplocos*, and *Ilex*, of which a specimen barely distinguished from *I. Havilandi* Loes. of Mt. Kinabalu was obtained.

The rest of the flora falls into three groups:—

(1) An Australian group, illustrated by *Corysanthes*, *Pterostylis*, *Astelia*, *Alpinia*, *Olearia*, *Vittadinia*, *Quintinia*, *Danthonia.*

(2) An Antarctic group, in which I include such genera as occur in Australia, New Zealand, and South America, with often outliers in the South African region. Such are *Drimys*, *Gunnera*, *Pittosporum*, *Coprosma*, *Pratia*, *Erechthites*, and *Abrotanella*, the distribution of this latter being Australia, the Falkland Isles, New Zealand, and Rodriguez.

(3) A Palæarctic group, represented by *Spiranthes*, *Ranunculus*, *Thalictrum*, *Potentilla*, *Epilobium*, *Veronica*, *Euphrasia*, *Gaultheria*, *Crepis*, *Lithospermum*, *Anaphalis*, *Polygonum* (Himalayan species), *Gentiana*, *Viola*, *Trisetum*, *Deschampsia*, and *Poa.*

In other high mountains of New Guinea were obtained *Taraxacum* and *Sagina.* Some of these genera occur also in the mountains of the Philippine Islands and Java, and a few, *Euphrasia*, *Gentiana*, and *Gnaphalium*, as far as Mt. Kinabalu in Borneo.

In view of our present limited knowledge of the Papuan flora, despite the great collections made in New Guinea, it would be premature to lay down any theory of the origin of the Flora of New Guinea. Further research is still being made by the German and Dutch botanists, and we may hope that the most neglected portion of the Island,

British New Guinea, may throw more light on the distribution of plants whenever we get collections from there.

There seem, however, to have been invasions of plants from all four points of the compass: from the north, as illustrated by the Palæarctic plants; from the east, the Polynesian genera; from the south, the Australian and Antarctic plants; and from the west, the Malayan element.

In the low coastal region of the south, which is perhaps of geologically modern date, as Mr. Wollaston records a mass of coral rock on a high ridge inland, the flora is distinctly that of the western Malay Archipelago in origin. Despite the proximity of Australia, the Australian flora is hardly as well represented as might have been expected; but this is probably due to the great climatic differences between the two countries. The occurrence of Polynesian plants not met with in Australia, as *Vavæa*, *Trimenia*, and *Heliconia*, is, of course, of considerable interest, as showing a wave of invasion from the east. Of the group of plants I have described as Antarctic, perhaps the most prominent is *Drimys*, of which there are no fewer than eight species in the collection, and two other species have been recorded from New Guinea. The genus is strongly represented in Australia and Polynesia and Southern Chile to Mexico. In Asia it gets as far as Mt. Kinabalu, where it disappears. The Palæarctic flora is nearly confined to the highest parts of the mountain, and resembles that of the Himalaya; nearly all the genera have been found in the Philippine mountains, which may represent the direction from which these northern plants have come.

The scantiness of the Anonaceæ, Leguminosæ, and Laurineæ in the collection is rather striking, especially as in the publications of the Dutch and Germans these orders are not well represented, and they seem to be comparatively rare in New Guinea. Another somewhat striking phenomenon is the immense number of Epidendreæ among Orchids and the scantiness of the Vandeæ; the species of *Dendrobium* and *Bulbophyllum* in New Guinea seem endless.

The Saxifragaceæ Cunoniaceæ are singularly well represented here, with *Quintiria*. *Spiræopsis*, *Astilbe*, and the endemic genera *Argyrocalymna* and *Pyrsonota*.

The Scitamineæ of New Guinea are remarkably different from those of the western Malay Archipelago. We may notice the disappearance of such characteristic genera as *Zingiber*, *Gastrochilus*, *Globba*, *Alpinia* (*Catimbium* section), and *Stachyphrynium*, which are replaced by *Riedelia*, *Eriolopha*, *Guillainia*, *Alpinia* of the *Hellwigia* section, which should probably be specifically separated, *Ptychanthus*, the curious new genus *Thylacophora*, *Tapeinocheilus*, *Cominsia*, and *Heliconia*; a number of these are also represented in the Polynesian Islands. The Scitamineæ of the Philippine Islands have a much greater Malayan affinity.

On the whole, it would appear advisable to consider New Guinea with a few of the most adjacent islands as forming a distinct region of its own, with a large endemic flora, mixed with derivatives from Malaya, Australia, and Polynesia, and, possibly through the Philippines, from the temperate regions of the north.

DICOTYLEDONES.

POLYPETALÆ.

By H. N. Ridley.

RANUNCULACEÆ.

Ranunculus amerophyllus, F. von Muell. in Trans. Roy. Soc. Vict. i. part ii. (1889) 1.

Camps XII to XIV, 10,500 to 12,500 ft.

Distrib. British New Guinea, Mt. Scratchley.

Ranunculus lappaceus, Sm. in Rees, Cyclop. xxix. 61, var. scapigerus, Hook. f., subvar. papuanus, Ridl., subvar. nov.

Differs from the typical variety in having the petioles and peduncles more slender and rather less hairy, the leaves 3–4-lobed, 1·5 cm. long and as wide, and the flowers and achenes smaller.

Camps IX to X, 5500 to 6700 ft. Flowers yellow.

Distrib. British New Guinea, Mt. Scratchley, *Giulianetti* (Herb. Kew.).

Ranunculus lappaceus, Sm., is a native of Australia, and is usually a plant of some size. The variety *scapigerus*, Hook. f., is a small reduced mountain plant from Tasmania.

Ranunculus tridens, Ridl., sp. nov.

Caulis crassus, 2 cm. longus. *Folia* in apice caulis congesta, petiolis 5 cm. longis hirtis, lamina coriacea hirta obcuneata triloba basi angustata 2–5 cm. longa 1 cm. lata quo latissima, lobo medio longiore lanceolato subacuto 8 mm. longo 3 mm. lato. *Scapi* 7–10 cm. alti, sæpe biflori, hirti. *Bractea* floris inferioris foliacea, lanceolata, integra, obtusa, hirta. *Sepala* lanceolata, acuta, hirta, 3 mm. longa. *Petala* 5, obovata, unguiculata, obtusa, 6 mm. longa, 3 mm. lata, in dorso purpurascentia, flava. *Stamina* ad 30, antheris ellipticis. *Carpella* 12–15 parva.

Camps XII to XIII, 10,500 to 12,500 ft.

This species is allied to *R. lappaceus*, Sm., but its foliage is very distinct, though one occasionally sees leaves on specimens of that species which tend towards this long cuneate trilobed form.

Thalictrum papuanum, Ridl., sp. nov.

Herba gracilis, simplex, 16–17 cm. alta. *Caulis* basi longe nudus. *Folia* 2, in medio cauli approximata vel per 5 cm. dissita, trifoliolata, glabra, foliolis obovatis trilobis 1 cm. longis 7 mm. latis, lobis brevibus rotundatis obtusis, nervis prominulis, petiolo 1 mm. longo, petiolulo intermedio 2 mm. longo, lateralibus 1 mm. longis. *Pedunculi* pars supra folia sita 6 cm. longa. *Flores* 2. *Bracteæ* foliaceæ, ovatæ, lanceolatæ, inferior 5 cm. longa, summa minor. *Sepala* 4, oblonga, ovata, subacuta,

2 mm. longa. *Stamina* circa 15. *Carpella* 9–11, stipitata, rostrata. *Achænia* circiter 9–11, curva, falcata, costata, stylo coronato, 3 mm. longa, stipite 1 mm. longo.

Camps XIII to XIV, 10,500 to 12,500 ft.

This resembles a very depauperate form of *T. javanicum*, Junghuhn, but the carpels have a distinct and rather long stipes, like those of *T. philippinense*, from which it differs in the flowers.

This is a genus new to Papua.

MAGNOLIACEÆ.

DRIMYS GRANDIFLORA, Ridl., sp. nov.

Folia sessilia, coriacea, rigida, subtus albescentia, oblanceolata, cuspidata, acuta, basi angustata vel obovata, obtusa, basi lata, 5–9 cm. longa, 2–3 cm. lata, costa prominula, nervis circiter 7 paribus tenuibus in utraque facie conspicuis. *Flores* singuli, axillares, pedicellis 5 cm. longis. *Sepala* 2, coriacea, ovata, obtusa, 6 mm. longa. *Petala* 8–9, inæqualia, oblonga, obtusa, 1 cm. longa. *Stamina* plurima, filamentis brevibus latis complanatis basi incrassatis, antheris basifixis. *Carpella* 2, in apice tori longiusculo, fere 1 mm. longa, semiovata.

Camp XIII, 10,500 ft.

Distinguished by its sessile coriaceous leaves with white backs, and the large flowers 2 cm. across with unequal petals, some being wider than others.

DRIMYS ROSEA, Ridl., sp. nov.

Frutex internodiis 3–5 cm. longis. *Folia* 3–5-na verticillata, coriacea, subtus albescentia, sessilia, oblonga vel obovato-oblonga, basi late rotundata, 4·5–6·5 cm. longa, 3–4 cm. lata, nervis circiter 6 paribus, utrinque reticulationibus elevatis. *Flores* plures in pedunculis erectis unifloris 6–7 cm. longis. *Sepala* 2, lata, orbicularia, coriacea, rotundata, 8 mm. longa, 10 mm. lata. *Petala* 8, oblonga, oblanceolata, obtusa, unguiculata, inæqualia, 14 mm. longa, 5 mm. lata vel minora, rosea. *Stamina* circiter 34, filamentis latis crassis, antherarum loculis ad basin divaricatis. *Carpella* 2–3 in toro mediocri.

Camps XII to XIII, 10,000 ft.

A very distinct species in its whorled coriaceous leaves with an elevated network of nerves above, and its large long-pedicelled rose-pink flowers with clawed petals. The leaves are described as grey-green.

DRIMYS UMBELLATA, Ridl., sp. nov.

Folia elongata, oblanceolata, breviter acuminata, basi longe angustata, cuneata, coriacea, sicca, superne griseo-viridia, lucida, subtus glauca, 17–20 cm. longa, 4·5–5·5 cm. lata quo latissima, nervis 22 paribus intra margines anastomosantibus, costa crassa elevata superne depressa, petiolis crassis sulcatis 5 mm. longis. *Paniculæ* 5–6, terminalis 3·5–5·5 cm. longa, pedunculis 2–3 cm. longis gracilibus, ramis 1–3-floris 1 cm. longis umbellatis. *Bracteæ* brevissimæ, caducæ. *Sepala*

caduca, orbiculata, vix 1 mm. longa. *Petala* 4, ovata, obtusa, pustulata, 2 mm. longa. *Stamina* 20, exteriora brevia, filamentis latis quadratis, interiora filamentis longioribus late linearibus, antheris loculis oblongis divaricatis ad basin sulcatis. *Pistilla* 3–4, obcuneata, lata, 1 mm. longa, stigmatibus crassis cariniformibus. *Receptaculum* subglobosum.

Camp VI *b*, 3900 ft.

A species very distinct in the large leaves and umbellate branches of the terminal panicles of very small flowers. The leaves are minutely dotted black on both sides, and the stem and panicle are rough and wrinkled. The pustular petals are also a peculiar characteristic.

It is perhaps most nearly allied to *D. Howei*, F. von Muell., but has much smaller flowers.

DRIMYS DENSIFOLIA, Ridl., sp. nov.

Rami crassi, 5 mm. diametro, atri. *Folia* approximata, coriacea, rigida, oblanceolata, acuminata, versus basin angustata, obtusa, auriculata, 10 cm. longa, 4·5 cm. lata, costa lata crassa, petiolis crassis 5 mm. longis. *Flores* plures in pedicellis complanatis superne dilatatis 3 cm. longis erectis. *Alabastra* ovoidea, acuta, globosa. *Sepala* 2, caduca. *Petala* 2, spathulata, obtusa, 8 mm. longa, 1 mm. lata. *Stamina* 18, inæqualia, antherarum loculis paullo ad basin divaricatis 3 mm. longis. *Torus* haud altus. *Carpella* 3, crassa, oblonga.

Camps XII to XIII, 10,500 to 11,000 ft.

Allied to *D. dipetala*, F. von Muell., of Australia, but more compact, with smaller flowers, spathulate petals, and shorter stamens.

DRIMYS PARVIFLORA, Ridl., sp. nov.

Rami nigri. *Folia* rigide coriacea, congesta, obovata, basi cuneata, 2 cm. longa, 1 cm. lata, marginibus incrassatis, nervis 4 paribus, petiolis 2 mm. longis crassis. *Pedicelli* erecti, complanati, 8 mm. longi. *Sepala* 2, connata, apicibus liberis, caduca, 2 mm. longa. *Petala* 4–5, lineari-oblonga vel subspathulata, obtusa, angusta, 4 mm. longa, 2 mm. lata. *Stamina* brevia, circiter 16, filamentis brevibus crassis, antherarum loculis divaricatis. *Carpella* 2–4, brevissima, crassa. *Torus* vix distinctus.

Camps XI to XII, 8300 to 11,000 ft.

Allied to *D. grandiflora*, but with concolorous smaller leaves, 4 or 5 petals, and fewer stamens. The whole flower is smaller.

DRIMYS ELONGATA, Ridl., sp. nov.

Frutex (?) ramis gracilibus. *Folia* alterna, obovata, spathulata, obtusa, coriacea, 3·5 cm. longa, 1 cm. lata, basi angustata, nervis 5 paribus vix conspicuis intra marginem anastomosantibus, petiolis 2 mm. longis. *Flores* extra-axillares, singuli in pedunculis gracilibus, 2 cm. longis. *Sepala* 2, ovato-orbicularia, cymbiformia, 5 mm. longa. *Petala* 5, oblonga, ad basin angustata, apice obtusa, 1·8 cm. longa, 7 mm. lata. *Stamina* 30, exteriora breviora, dimidio interiorum 5 mm. longorum

æqualia, filamentis crassis, antheris basifixis, loculis ad basin divaricatis. *Pistillum* unicum, cylindricum, uniloculare, stigmate laterali, stylo nullo.

Camps III to VIII, 2500 to 4900 ft.; Camps VI *b* and VI *c*, 3900 to 5500 ft.

A very distinct species in its long slender branches and long-pedicelled flowers, which appear to have been rose-pink.

Drimys buxifolia, Ridl., sp. nov.

Caules validuli, dense foliati. *Folia* oblanceolata, obtusa, basi angustata, rigida, coriacea, 1·5–1·8 cm. longa, 0·5–1·2 cm. lata, nervis 3 paribus, petiolis crassis 2 mm. longis. *Flores* axillares, singuli, parvi, pedunculis 1 mm. longis. *Alabastra* globosa. *Sepala* 4 mm. longa, ovata. *Petala* 4, oblongo-ovata, basi angustata, 3 mm. longa, 2 mm. lata. *Stamina* 20, subæqualia, filamentis latis, antheris ovatis loculis basi divaricatis. *Pistilla* parva, 3, staminibus breviora. *Torus* vix elevatus.

Camps XIII to XVI, 8300 to 10,500 ft.

Allied apparently to *D. Traversi*, T. Kirk, of New Zealand, which it resembles in the small stiff foliage, recalling that of the box-tree.

Drimys vaccinioides, Ridl., sp. nov. (Plate 1. figs. 1–6.)

Fruticulus ramis gracillimis. *Folia* obovata, obtusa, rotundata, basi angustata, 5 mm. longa, coriacea, glabra, costa prominula, nervis 2 paribus vix distinctis, petiolis 1 mm. longis. *Flores* singuli, axillares, 2 mm. lati, pedicellis gracilibus 6 mm. longis. *Sepala* 2, ovata, obtusa, glabra. *Petala* 2, oblanceolata, obtusa. *Stamina* 8, subæquilonga, filamentis crassis, antherarum loculis ad basin divergentibus. *Carpellum* unicum, ovoideum, obtusum, complanatum, staminibus fere æquilongum.

Camp XIII, 10,500 ft.

A most remarkable little species with slender branches and somewhat distant small rounded leaves, resembling a *Vaccinium* of the *V. Oxycoccos* type. It must be much the smallest species of the order Magnoliaceæ.

New Guinea seems to be the headquarters of the genus *Drimys*. Besides the species here described, there are recorded from the island *D. hatamensis*, Becc., and *D. piperita*, Hook. fil.; the latter also occurs in Borneo and the Philippines.

DILLENIACEÆ.

Wormia hirta, Ridl., sp. nov.

Arbor ramis pilis brevibus rigidis tectis. *Folia* elliptica vel elliptico-lanceolata, versus basin angustata et breviter in petiolis decurrentia, apice angustata, cuspidata, coriacea, glabra, marginibus breviter denticulatis, 14–18 cm. longa, 7·5–8 cm. lata, nervis 17 paribus superne depressis subtus elevatis, nervulis sub-parallelis plurimis tenuibus inconspicuis, petiolis gracilibus canaliculatis haud alatis hirtis. *Racemus* 2–3-florus, 3·5 cm. longus, pedunculo 7–9 cm. longo, pedicellis crassiusculis 8 mm. longis, omnibus hirtis. *Sepala* 5, oblongo-ovata, exteriora 2 subacuta, interiora obtusa, apice rotundata, extus hirta, 1·5 cm. longa, 0·7 cm. lata. *Petala* citrina,

obovata, spathulata, rotundata, 3·5 cm. longa, ad apicem 2·7 cm. lata, ad basin unguis 3 mm. lata. *Stamina* plurima, exteriora breviora 6 mm. longa, interiora longiora 1 cm. longa. *Carpella* 7, glabra, 1 cm. longa, matura expansa, ovata, obtusa; stylo coronata, 1·5 cm. lata.

Canoe Camp, 150 ft.

Allied to *W. Macdonaldi*, F. von Muell., but differing in its hairy stem, petioles, and sepals, and the much larger petioles. "Flowers deep lemon-yellow. Fruit carmine."

SAURAUIA EXIMIA, Ridl., sp. nov. (Plate 1. figs. 15–19.)

Frutex ramis gracilibus lenticellatis. *Folia* coriacea, ovata, obtusa vel subacuta, in marginibus denticulata, 3·5–4 cm. longa, 2·5–2 cm. lata, superne glabrescentia, pilis paucis dissitis, subtus pallidiora, in reticulationum juncturis pilis atris obsita, costa squamis acutis tecta, nervis 5 paribus, petiolis pilis squamiformibus tectis 1 mm. longis. *Flores* singuli, axillares, pedicellis 2 cm. longis hirtis. *Sepala* 2, exteriora ovata, rotundata, obtusa, 8 mm. longa et lata, pilis appressis atris dissitis tecta, interiora angustiora 4, lanceolata, acuminata, cartilaginea, in medio dense setis roseis longis rigidis tecta. *Petala* ad basin connata, spathulata, rotundata, alba, 14 mm. longa, 10 mm. lata. *Stamina* brevia, 25, tubo petalorum adnata, filamentis latis complanatis, antheris linearibus apice bifidis, introrse dehiscentibus æquilongis. *Ovarium* subglobosum, obscure 5-lobum. *Styli* 5, glabri.

Camps IX to X, 5500 to 6700 ft.

A most curious species and quite unlike any other in its small round coriaceous leaves, drying fuscous above and dotted all over beneath with very small black hairs on the junctions of the reticulations. The two very distinct series of sepals, the inner ones narrow and ornamented with a mass of long stiff pink bristles projecting beyond the tip of the sepal, and the connate petals falling off the flower with the stamens attached, are also unique in this genus.

SAURAUIA OBLANCEOLATA, Ridl., sp. nov.

Caules et folia glabra. *Folia* elliptica vel oblanceolata, obtuse cuspidata, basi angustata, marginibus undulatis, 9–12 cm. longa, 3–5 cm. lata, pilis aculeiformibus in dentibus remotis, nervis 12 paribus, costa setis brevibus appressis munita, petiolis 1 cm. longis paucisetosis. *Pedunculi* axillares, subterminales, 3, adulti glabri, 4 cm. longi. *Flores* in cymis 3. *Bracteæ* oblongæ, 4 mm. longæ, pedicellis æquales, setis appressis tectæ. *Bracteolæ* florales breviores, ovatæ, lanceolatæ, obtusæ, marginibus hirtis. *Sepala* orbiculari-ovata, 6 mm. longa, 5 mm. lata, setis appressis dissitis. *Petala* oblonga, quadrata, 8 mm. longa, 5 mm. lata, apice biloba, lobis obtusis denticulatis. *Antheræ* lineares, appendiculati, filamentis ad basin connatis æquilongæ. *Styli* 5, graciles, liberi.

Canoe Camp, 150 ft.; Camp VI *a*, 3100 ft.

Flowers white. Near *Saurauia pendula*, Blume, Bijdr. 127, but the stems are glabrous, the sepals hairy with flattened setæ, and the petals are not rounded at the top but bilobed.

SAURAUIA UNIFLORA, Ridl., sp. nov.

Frutex. Folia obovata, cuspidata, basi cuneata, in marginibus obscure crenulata et minute aciculata, 12 cm. longa, 6 cm. lata, glabra (nisi juvenilia hirta), costa semper hirta, nervis 10 paribus, petiolis 0·5 mm. longis vel brevioribus hirtis. *Flores* singuli, pedicello erecto 3·5–4 cm. longo hirto. *Sepala* 5, ovata, 6 mm. longa, in dorso hirta. *Petala* 5, linearia, oblonga, 12 mm. longa, 4 mm. lata, apicibus truncatis emarginatis. *Stamina* plurima, antheris linearibus appendiculatis. *Styli* 5, glabri.

Camps VIII to IX, 4900 to 5500 ft.

Allied to *S. papuana*, Schum., but with larger solitary flowers, 2·5 cm. across, and obovate leaves.

SAURAUIA MONADELPHA, Scheff. in Ann. Jard. Buitenz. i. (1876) 8.

Camps VIII to IX, 4900 to 5500 ft.

Distrib. Endemic in New Guinea.

SAURAUIA MOLLISSIMA, Ridl., sp. nov.

Frutex caule foliis floribusque undique pilis mollissimis flavescentibus tectis. *Folia* magna, late oblanceolata, acuminata, basi angustata, in margine denticulata, 24 cm. longa, 10 cm. lata, nervis 19 paribus, costa nervisque dense hirtis. *Flores* subsessiles vel pedicellis 5 mm. longis hirtis suffulti, extra-axillares. *Sepala* 5, ovata, pilis longissimis extus tecta, 1 cm. longa. *Petala* 5, glabra, oblonga, obtusa. *Stamina* glabra, antheris breviter appendiculatis. *Styli* breves, 2, glabri.

Camp VI *b*, 3900 ft.

All the specimens are in bud, so that I cannot give the dimensions of the petals.

It is allied to *S. Versteegii*, Schum., but is more softly and closely villous and the leaves are widely oblanceolate.

SAURAUIA HYSTRIX, Ridl., sp. nov.

Folia coriacea, superne glabra, subtus dense lanugine ferruginea tecta, oblonga, basi cordata, apice obtusa, in marginibus aculeis brevibus atris basi incrassatis armata, 21 cm. longa, 15 cm. lata, nervis 13 paribus, costa crassa, petiolis 1 cm. longis crassis aculeatis. *Flores* sessiles, in capitulum 3 cm. latum congesti, pedunculo 14 cm. longo rufo-furfuraceo et aculeato. *Involucrum* rigidum, orbiculare, in margine aculeatum, in dorso scabridum, setis brevibus. *Sepala* oblonga, coriacea, obtusa, extus dense setis longis rubris tecta, 1·5 cm. longa, 1 cm. lata. *Petala* tenuiora, obovata, basi angustata, extus setosa.

Camps XI to XII, 8300 to 11,000 ft.

Allied to *S. conferta*, Warb., but distinct in its thick coriaceous leaves, which are red-woolly on the back, its thorny peduncle, and its remarkably long stiff bristles on the sepals. The specimens were nearly past flowering.

ANONACEÆ.

Orophea setigera, Ridl., sp. nov.

Rami atri, hirti, superne (partes juniores) dense brunneo-velutini. *Folia* lanceolata, acuminata, basi obtusa subcoriacea, subsessilia, 13 cm. longa, 3 cm. lata, sicca utrinque grisea, nervis subtus prominentibus 14 paribus setosis, setis in nervis nervulis et reticulationibus dissitis, costa densius setosa. *Flores* in pedunculis axillaribus dense rufo-hirtis. *Sepala* 3, parva, ovata, dense hirta. *Petala* 6 in seriebus 2, exteriora sepaloidea, lanceolata, obtusa, extus ad 1·5 mm. longa, interiora 4 mm. longa, oblonga, obtusa, versus basin paullo angustata, extus longe hirta, intus glabra. *Stamina* 12, glabra, connectivo prolongato rotundato erecto. *Carpella* plura, hirta.

Camps III to VIII, 2500 to 4900 ft.

A single specimen with one flower. The foliage resembles that of *O. setosa*, King. The petals are hardly spathulate, being only slightly narrowed at the base. The stamens have a curved rounded, rather large connective.

Cananga odorata, Hook. f. & Thoms. Fl. Ind. i. 130.

Canoe Camp, 150 ft.

Distrib. Malay Peninsula.

Popowia pisocarpa, Endl. in Walp. Rep. i. 74.

Camp VI *b*, 3900 ft.

Distrib. Sumatra, Java, Borneo.

Oxymitra biglandulosa, Scheff. in Nat. Tijd. Ned. Ind. xxxi. (1870) 341.

Camp III, 2500 ft. "Pale yellowish brown. Big tree."

Distrib. Malay Peninsula and Islands.

There is also a species of *Artabotrys* in the collection, but too imperfect to describe. The order Anonaceæ does not seem to be nearly as well represented in New Guinea as in the more western islands of the Archipelago.

MENISPERMACEÆ.

Stephania Zippeliana, Miq. in Ann. Mus. Lugd.-Bat. iv. (1868) 86.

Camp VI *a*, 3100 ft.

Distrib. Endemic in New Guinea.

CRUCIFERÆ.

Nasturtium indicum, DC. Syst. ii. 199.

Camps VIII to IX, 4900 to 5500 ft.

Distrib. Indo-Malaya, China.

Cardamine hirsuta, Linn. Sp. Pl. 255.

Camps III to VI, 2100 to 500 ft.

Distrib. All Temperate and Tropical Regions.

Papuzilla, Ridl., gen. nov.

Herba pusilla, hirta. *Folia* lanceolata vel ovata, integra vel dentata. *Racemi* axillares, rachi spina terminata nuda, floribus parvis 2. *Sepala* 4, oblonga. *Petala* 4, breviora. *Stamina* 2, sepalis breviora. *Pistillum* ovoideum, stylo brevi crasso, stigmate capitato lobato. *Silicula* ovoidea, bilocularis, 2-sperma, septo membranaceo. *Semen* pendulum, obovoideum, rugosum, funiculo longiusculo.

Papuzilla minutiflora, Ridl., sp. nov. (Plate 1. figs. 7–14.)

Herba 5 cm. alta, ramosa, caule hirto. *Folia* lanceolata vel ovata, superiora ad apicem tridentata, dentibus ovatis acutis, carnosa, costata, 5 mm. longa, 2 mm. lata. *Racemus* 9 mm. longus, pubescens, spiniformis, basi floribus 2 parvis 1 mm. longis, pedicellis 3 mm. longis pubescentibus. *Sepala* oblonga, obtusa. *Petala* mox caduca, linearia, obtusa, alba, basi angustata. *Stamina* 2, filamentis brevibus, antheris ellipticis majusculis. *Pistillum* ovoideum, stylo brevi. *Silicula* bivalvis, chartacea, 2 mm. longa, ovoidea, complanata. *Semina* 2, ovoidea, purpurea, rugosa, 2 mm. longa.

Camp XIII, 10,500 ft.

I do not know the affinity of this little plant, but it appears to be one of the Isatideæ. The arrangement of the inflorescence with the bare rachis only bearing two flowers at the base, the upper part being converted into a spine, resembles that of the Egyptian *Zilla*.

The flowers are evidently much reduced, the petals very small and soon falling, and the stamens reduced to two only. The leaves vary in form, the lower ones being ovate to lanceolate, entire, the upper ones bearing three teeth at the top. In one specimen the leaves are all elongate cuneate, dilated upwards from a narrow base with several teeth at the apex.

VIOLACEÆ.

Viola lunata, Ridl., sp. nov.

Caules debiles, elongati, glabri, internodiis 6 cm. longis. *Folia* late hastata, fere lunata, obtusa vel rotundata, in marginibus undulata, glabra, 1 cm. longa (a sinu ad apicem), 2·5 cm. lata, lobis rotundatis 1 cm. longis et æquilatis, nervis 5 paribus, petiolis gracilibus 1·5 cm. longis. *Stipulæ* lanceolatæ, oblongæ vel ovatæ, acuminatæ, 4–5 mm. longæ. *Pedunculus* gracilis, 6–9 cm. longus, uniflorus. *Sepala* ovata, lanceolata, acuta, viridia, glabra, 2 mm. longa, trinervia. *Petala* 5 mm. longa, 3 angusta, oblonga, obtusa, 2 latiora subacuta. *Calcar* brevissimum, obtusum. *Stamina* calcarata. *Stylus* brevis, crassus, curvus, truncatus, stigmate

obtuso. *Capsula* 7 mm. longa, linearis, angusta. *Semina* ellipsoidea-ovoidea, lactea.

Camps VIII to IX, 4900 to 5500 ft.

This is allied to *V. arcuata*, Blume, a little known plant from Java, but it is quite glabrous and the leaves are not serrate. The stipules are glabrous, with very few teeth at the base.

VIOLA KLOSSII, Ridl., sp. nov.

Herba stolonifera, rhizomate lignoso. *Folia* subcoriacea, cordata, acuta, obtuse remote serrata, basi paullisper in petiolum angustata, 2 cm. longa, 2·5 cm. lata, lobis rotundatis 7 mm. longis, nervis 5 paribus haud conspicuis, petiolis 5·5 cm. longis. *Stipulæ* lanceolatæ, acuminatæ, glabræ, integræ, 4 mm. longæ. *Pedunculi* 4–8 cm. longi. *Bracteæ* lanceolatæ, acuminatæ, angustæ. *Sepala* angusta, lanceolata, acuminata, 4 mm. longa. *Petala* superiora obovata, rotundata, unguiculata, 1 cm. longa, 5 mm. lata, inferiora oblonga obtusa. *Calcar* cylindricum, horizontale, crassum, obtusum, 6 mm. longum. *Staminum* appendices ovati. *Stylus* longus, crassiusculus, rectus, stigmate cupuliformi. *Capsula* brevis, ovoidea, 5 mm. longa. *Semina* obovoidea, pallide brunnea.

Camps IX to XI, 5500 to 8300 ft.

A dwarfed, much reduced form at Camp XIII.

Flowers white with a violet centre.

Allied to *V. Patrinii*, but the bases of the leaves are not cuneate and decurrent on the petiole, the spur is longer, and the capsule is not narrow, as in that species.

SCHUURMANSIA PARVIFLORA, Ridl., sp. nov.

Folia coriacea, obovata, subacuta, basi longe angustata, multo et tenuiter striata, 15 cm. longa, 6 cm. lata, petiolis alatis 4 cm. longis. *Panicula* brevior, 9–10 cm. longa, densiflora, basi 3 cm. nuda, ramis brevibus. *Bracteæ* minimæ, semi-amplexicaules, lanceolatæ, denticulatæ. *Pedicelli* vix 1 mm. longi. *Sepala* 4, ovata, obtusa, imbricata, in dorso rugosa. *Petala* 4, lanceolata, obtusa, longiora 1 mm. longa. *Staminodia* 16, linearia, acuminata, alba, in una serie, furcata. *Stamina* 4, antheris ellipticis mucronatis sessilibus. *Ovarium* glabrum, conicum, obtuse triquetrum, uniloculare, placentis 3 parietalibus. *Stylus* acuminatus, stigmata minima.

Canoe Camp, 150 ft.

This differs from *S. Henningsiana*, Schum., in its much smaller size, obovate leaves, much smaller flowers, and acuminate style with very small stigmas.

PITTOSPOREÆ.

PITTOSPORUM NUBIGENUM, Ridl., sp. nov.

Frutex. *Folia* crasse coriacea, alterna, obovata vel oblanceolata, obtusa, basi angustata, marginibus integris involutis, 3–5·5 cm. longa, 8–10 mm. lata, nervis

circiter 6-paribus cum reticulationibus supra depressis, subtus paullo elevatis, petiolis 2 mm. longis pubescentibus. *Racemi* axillares hirti, 2·5 mm. longi. *Bracteæ* lanceolatæ, 2 mm. longæ, hirtæ. *Pedicelli* 5–6 mm. longi, hirti. *Sepala* 5, coriacea, oblonga, obtusa, marginibus ciliatis. *Petala* 5, linearia, oblonga, 6 mm. longa, 2 mm. lata, obtusa. *Stamina* 5, breviora, filamentis crassiusculis complanatis versus apices attenuatis glabris, antheris aurantiacis dorsifixis, loculis ad basin divaricatis. *Ovarium* sessile, hirtum, ovulis pluribus. *Stylus* validus, cylindricus, glaber. *Stigma* latum, planum. *Capsula* globoso-oblonga, circiter 1 cm. longa, seminibus pluribus atris irregulariter angulatis 4 mm. longis.

Camp XIII, 10,500 ft.

A very distinct species in its stiff, almost spathulate leaves and short yellowish racemes; the petals appear to have been dark pink. The young parts of the plants and the petioles of adult leaves are covered with dark coloured hairs.

Pittosporum sinuatum, Blume, in Mus. Bot. Lugd.-Bat. i. 161.

Camp III, 2500 ft.

Distrib. Endemic in New Guinea.

POLYGALACEÆ.

Salomonia cylindrica, Kurz, in Journ. As. Soc. Beng. xliii. ii. (1874) 79.

Canoe Camp, 150 ft.; Camp I, 700 ft.; Camp VI *a*, 3100 ft.

Distrib. Burma and Malaya.

CARYOPHYLLEÆ.

Drymaria cordata, Willd. in Roem. & Schult. Syst. v. 406.

Camp VI *c*, 5500 ft., and Camps VIII to IX, 4900 to 5500 ft.

Distrib. Southern India and Ceylon, Sumatra, China.

The form represented by the specimens quoted has 2 stamens only, the style is bifid and the capsule 2-seeded. The species varies much in the number of stamens (2 to 5), style arms (2 to 3), and seeds (1 to 3 or more).

HYPERICINEÆ.

Hypericum papuanum, Ridl., sp. nov.

Herba erecta, ramosa, caule gracili glabro rufo 24 cm. alto. *Folia* opposita, sessilia, ovata, apice et basi rotundata, glanduloso-punctata, 12 mm. longa, 7 mm. lata, subtus glaucescentia. *Flores* singuli in apice ramorum, pedicello gracili 8 mm. longo. *Sepala* lanceolata, obtusa, 3 mm. longa. *Petala* obovata, obtusa, flava, margine uno rubro, 8 mm. longa, 4 mm. lata. *Stamina* breviora, circiter 5 mm. longa. *Styli* 3. *Capsula* ovoidea, 5 mm. longa, stylis 2 mm. longis coronata.

Camps IX to XII, 5500 ft. to 11,000 ft.

Allied to *H. pulogense*, Merrill, of the Philippines, but with much narrower sepals, larger petals, and shorter stamens.

Hypericum japonicum, Thunb. Fl. Jap. 295, t. 31.

Camps VII to IX, 3600 to 6700 ft.

Distrib. Waste ground in Tropical and Temperate East Asia.

GUTTIFERÆ.

Garcinia (§ Discostigma) Wollastonii, Ridl., sp. nov.

Rami angulati. *Folia* coriacea, elliptica, lanceolata, acuminata, obtusa, basi angustata, sessilia, 6–10 cm. longa, 3·5–4 cm. lata, nervis circiter 12-paribus tenuibus, nervulis vix tenuioribus. *Flores* masculi in fasciculis axillaribus, bracteis minutis lanceolatis ovatis acutis flavescentibus 4 mm. latis, pedicellis 4 mm. longis. *Sepala* 2, minima, ovata, acuta. *Petala* 5, multo majora, orbiculata, basi paullo angustata. *Stamina* in fasciculis 4, antheris 7 minimis, filamentis in stipitem crassum connatis. *Pistillodium* magnum, agariciforme, stylo gracili, stigmate magno rotundato capitato fusco rugoso.

Camps I to III, 500 to 2500 ft.

The flowers resemble those of *G. sarawakensis*, Pierre, in form and structure, but the foliage is very different, being much thinner and larger, with the nerves more conspicuous.

Garcinia viridiflora, Ridl., sp. nov.

Arbor ramis haud angulatis. *Folia* lanceolata, cuspidata, tenuiter coriacea, basi cuneata, 18 cm. longa, 5·5 cm. lata, nervis plurimis parallelis ultra 30-paribus, petiolis 2 cm. longis rugosis. *Flores* pauci (2–3), axillares, subsessiles, pallide virides, 2 mm. longi. *Sepala* 4, orbicularia, rotundata, versus apices paullisper gibbosa, marginibus minute ciliatis. *Petala* 4, oblonga, acuta, apice incurva; sepalis longiora, carnosa, intus sulcata. *Stamina* ad 15, antheris sessilibus elliptico oblongis liberis complanatis in receptaculo paullo elevato. *Pistillodium* nullum. *Flores* feminei et fructus desunt.

Canoe Camp, 150 ft.

This has much the habit of *G. Forbesii*, King, of Sumatra, but the flowers are much smaller, and the anthers are not orbicular but oblong.

Garcinia Klossii, Ridl., sp. nov.

Rami 4-angulati, flavescentes, 2 mm. crassi. *Folia* coriacea, lanceolata, basi longe acuminata, apice acuta, sicca grisea, 9 cm. longa, 3 cm. lata, nervis 10 paribus superne depressis subtus elevatis intra margines anastomosantibus, nervis secundariis brevioribus sed fere æque crassis, petiolis 1–1·5 cm. latis rugosis canaliculatis. *Flores* masculi in fasciculos sessiles axillares congesti, 5 mm. latis. *Bracteæ* ovatæ, acutæ. *Sepala* 4, ovata, rotundata, rigida. *Petala* tenuiora, oblanceolata, obtusa, ad basin angustata, æquilonga, 0·35 mm. longa. *Stamina* 14, filamentis haud

connatis quam antheræ ellipticæ longioribus. *Pistillodium* æquilongum, stylo elongato, stigmate parvo capitato.

Camp III, 2500 ft.

GARCINIA RUBRIFLORA, Ridl., sp. nov.

Folia tenuiter coriacea, lanceolata, longe acuminata, cuspidata, ad basin angustata, 12 cm. longa, 4·5 cm. lata, nervis tenuibus 8 paribus, petiolis canaliculatis 12 mm. longis. *Flores* masculi in fasciculos axillares 4 mm. latos congesti, rubri, pedicellis 2 mm. longis. *Sepala* 4, orbicularia, rotundata. *Petala* 4, lanceolata, obtusa, quam sepala duplo longiora, 2 mm. longa. *Stamina* 6 in verticillum connata, antheris lanceolatis acutis. *Pistillodium* parvum, fere æquilongum, stigmate oblongo obtuso.

Camp I, 700 ft.

Allied to *G. tetrandra*, Pierre, and *G. picrorhiza*, Miq., but with more stamens.

TILIACEÆ.

ELÆOCARPUS VISCOSUS, Warb. in Engl. Bot. Jahrb. xviii. (1893) 201.

Camp III, 2500 ft. "Flowers yellowish white."

Distrib. Endemic in New Guinea.

ELÆOCARPUS FLORULENTUS, Ridl., sp. nov.

Arbor glabra. *Folia* elliptica vel oblanceolata, obtusa, serrata, coriacea, utraque facie conspicue reticulata, 8·5–9·5 cm. longa, 3·5–4 cm. lata, nervis 7–8-paribus subtus elevatis, petiolis 1 cm. longis. *Racemi* plurimi, erecti, 10 cm. longi, floribus plurimis, pedicellis sericeis 5 mm. longis. *Sepala* lanceolata, subacuta, 4 mm. longa, sericea. *Petala* glabra, 5 mm. longa, late obcuneata, oblonga, laciniis pluribus linearibus ad dimidium fissa. *Stamina* filamentis brevissimis glabris, antheris linearibus appendiculatis. *Ovarium* subglobosum, hirtum; stylo ad basin conoideo, superne glabro subulato, sepalis æquilongo. *Torus* lobatus, undulatus.

Camp III, 2500 ft.; Camps VIII to IX, 4900 to 5500 ft.

Allied to *E. floribundus*, Blume, but differing in the stiff oblanceolate leaves, and to *E. Miqueli*, Hochreutiner, of Banka, which has flowers twice as large.

ELÆOCARPUS OCHRACEUS, Ridl., sp. nov.

Arbor hirta. *Folia* opposita, papyracea, elliptica, cuspidata, basi angustata, acuta, in marginibus denticulata, 15 cm. longa, 9·5 cm. lata, superne glabra costa et nervis hirtis exceptis, subtus hirta, nervis 10 paribus, petiolis 1·5 cm. longis hirtis. *Racemi* breves, axillares, 1 cm. longi, pedicellis 2·5 cm. longis hirtis, floribus 2–4. *Bracteæ* lineares, acuminatæ, 2 mm. longæ. *Sepala* lanceolata, acuminata, acuta. 15 mm. longa, ad basin 3 mm. lata, omnino hirta. *Petala* 2 cm. longa, linearia, oblonga, laciniata, basi hirta, apice glabra, laciniis 10–12 acutis inæqualibus.

Stamina filamentis gracilibus glabris 5 mm. longis, antheris linearibus fasciculo pilorum ad apicem munitis. *Ovarium* globosum, hirsutum. *Stylus* quam petala brevior, in dimidio inferiore hirtus, superne glaber. *Torus* parvus.

Camp III, 2500 ft. "Flowers ochre."

Allied to *E. edulis*, Teysm., in the form of the flower and the opposite leaves, but whilst the leaves are small and lanceolate in that species, they are very large in this, and the whole plant is much more hairy. Forbes's nos. 295 and 580, from British New Guinea, seem to be the same species.

Grewia laurifolia, Hook. fil. Fl. Brit. Ind. i. 392.

Camp III, 2500 ft. "Flowers pale lemon."

Distrib. Malay Peninsula and Archipelago.

Sloanea coriacea, Ridl., sp. nov.

Folia opposita, juvenilia subtus fugaciter ferrugineo-furfuracea, deinde, glabra, coriacea, elliptica, acuminata, basi cuneata, obtusa, 16 cm. longa, 7·5 cm. lata, nervis 8 paribus, nervulis reticulatis in utraque pagina conspicuis tenuibus, petiolis 12 mm. longis. *Flores* singuli, axillares, in pedicello pubescente 1 cm. longo. *Sepala* 5, ovata, acuta, 1 cm. longa, 0·5 cm. lata, utrinque pubescentia. *Petala* 5, oblonga, 14 mm. longa, 8 mm. lata, dentibus 6–7 latis brevibus obtusis. *Stamina* numerosa, 9 mm. longa, pubescentia, filamentis brevibus 1 mm. longis, antheris linearibus ad apices lateraliter dehiscentibus, arista longa acuminata. *Discus* 5 mm. latus, velutinus, cancellatus.

Camp VI *a*, 3100 ft.

Allied to *S. Forbesii*, F. von Muell., from which it differs in its glabrous leaves and longer stamens and the considerably longer awns.

GERANIACEÆ.

Geranium papuanum, Ridl., sp. nov.

Rhizoma repens, vaginis foliorum delapsorum ferrugineis costatis tectum. *Caulis* erectus, 30 cm. vel ultra longus, glabrescens, internodiis 5–6 cm. longis. *Folia* basalia caulinis conformia, sed longius petiolata, caulina petiolis 5–10 mm. longis pubescentibus, lamina ambitu flabellata, sinu basali vix distincta, lobis 5 oblongis apice 2–3-lobis, superne pilis paucissimis subtus in nervis pilis pluribus induta, 7–9 mm. longa, 15 mm. lata. *Stipulæ* lanceolatæ vel lineares, acuminatæ, pubescentes, 2 mm. longæ. *Pedunculi* graciles, 4–4·5 cm. longi, pubescentes uniflori. *Bracteæ* lanceolatæ, acutæ, cuspidatæ, basi latæ, 4 mm. longæ, basi et marginibus sericeo-hirtæ. *Petala* læte rosea, 1 cm. longa, 6 cm. lata, obovata, rotundata, unguiculata, glabra. *Stamina* quam sepala breviora, filamentis glabris, antheris brevibus oblongis, apicibus rotundatis. *Ovarium* pilosum, styli glabri.

Camps X to XI, 6700 to 8300 ft.

Var. ALPESTRE, Ridl., var. nov.

Herba minor compactior, foliis 7·4 mm. longis 7 mm. latis.

Camps XIII to XI, 8300 to 10,500 ft.

Closely allied to this is a smaller-flowered plant, with broader papery stipules, from Wharton Range, New Guinea, collected by Giulianetti (Herb. Kew.). It seems also intermediate between this and the next species.

GERANIUM MONTICOLA, Ridl., sp. nov.

Herba pusilla, perennis, 3–14 cm. alta. *Folia* petiolis gracilibus 5–7 cm. longis sericeis, lamina 5-palmata 6 mm. longa 12 mm. lata subtus sericea superne hirtula, lobis trilobulatis obcuneatis, lobulis obtusis vel minute mucronulatis. *Stipulæ* ovatæ, acutæ, pubescentes, latæ, ferrugineæ, 2 mm. longæ. *Flores* singuli, pedunculis 5 mm. longis sericeis. *Bracteæ* 2, ovatæ, acutæ, ferrugineæ, pubescentes, 2 mm. longæ. *Pedicelli* 5 mm. longi, sericei. *Sepala* lanceolata, acuta, cuspidata, tricostata, sericea, basi sericeo-hirta, 3 mm. longa. *Petala* paullo longiora, obovata, cuneata, obtusa. *Stamina* glabra, sepalis breviora. *Carpella* hirta, stylis brevibus glabris.

Camp XIII, 10,500 ft.

This differs from the preceding species in the silky-white backs to the leaves, the broad ovate papery stipules and bracts, the smaller and narrower petals which appear to have been white, and the shorter thicker styles.

OXALIS CORNICULATA, Linn. Sp. Pl. 435.

Camps VIII to IX, 4900 to 5500 ft.

Distrib. All over the world. A weed.

IMPATIENS HAWKERI, Bull, in Gard. Chron. N. S. XXV. (1886) 761, fig. 168.

Camp III, 2500 ft., and Camps VI *b*, VII to VIII, 3600 ft. to 4900 ft.

These latter specimens have the petals nearly entire instead of distinctly lobed. Specimens from Camps IX to XI, 5500 to 8300 ft., are more hairy than usual.

I cannot distinguish these specimens from specimens of *I. Hawkeri*, Bull, in Herb. Kew., but the colour of the flowers as given by Mr. Kloss in his field-notes is "mauve-pink," whereas the ordinary well-known plant is generally nearly scarlet.

The species is endemic, and appears to be widely spread in New Guinea.

IMPATIENS KLOSSII, Ridl., sp. nov.

Herba caule glabro, innovationibus hirtis. *Folia* 2–4-na verticillata, lanceolata, acuminata, basi cuneata, in marginibus crenata, crenis piligeris, 7 cm. longa, 1·5 cm. lata, superne glabra, subtus nervis elatis 5-paribus cum costa hirtis, petiolis hirtis 5 mm. longis. *Pedunculus* hirtus, 5 cm. longus. *Flores* 3 cm. lati, albi vel rosei. *Sepalum* ovatum, cuspidatum, glabrum, 5 mm. longum. *Petala* obovata, obtusa, integra, alis retusis e medio denticulatis, labello ovato cuspidato.

Camps VI *b* and VI *c* and VII to VIII, 3600 to 5500 ft.; Camps VIII to IX, 4900 to 1100 ft.

A form with the leaves sprinkled with hairs above.

This species is allied to *I. Herzogii*, Schum., of Papua, differing in its hairiness, and the more distinctly obovate petals and broader lip. The flowers are described as ranging from white to pink.

RUTACEÆ.

EVODIA SPECTABILIS, Ridl., sp. nov.

Folia trifoliata, glabra, coriacea, foliolis obovatis obtusis breviter cuspidatis 10–14 cm. longis 7–8 cm. latis (medio paullo latiore 8–10 cm. lato), basi in petiolulo 1 cm. longo decurrentibus, nervis 10–12 paribus subtus elevatis, petiolo 9 cm. longo. *Panicula* brevis, 4 cm. longa, 8 cm. lata, trichotoma, pedunculo 2·5 cm. longo, pedicellis pubescentibus 7 mm. longis. *Sepala* 4, ovata, obtusa, pubescentia, 4 mm. longa. *Petala* alba, oblonga, lanceolata, obtusa, carinata, apicibus incurvis 5 mm. longis, facie interna e basi pubescente. *Stamina* 4, filamentis crassiusculis apice angustatis 8 mm. longis, antheris ellipticis. *Discus* pubescens, substellatum, lobis brevibus obtusis 4. *Ovarium* 4-lobum. *Stylus* vix dimidio filamenti æqualis.

Camp VI *b*, 3900 ft.

Allied to *E. crassiramea*, K. Schum., of New Guinea, but the leaves are petioled.

TERMINTHODIA OPPOSITIFOLIA, Ridl., sp. nov. (Plate 1. figs. 20–27.)

Rami graciles. *Folia* opposita, simplicia, obovata vel oblanceolata, obtuse cuspidata, basi longe cuneata, margine integro, 8–9 cm. longa, 3·5–4·5 cm. lata, nervis tenuibus pluribus parallelis, petiolis gracilibus 12 mm. longis. *Paniculæ* axillares, trichotomæ, 4 mm. longæ, paucifloræ. *Bracteæ* minimæ, ovatæ. *Pedicelli* 2 mm. longæ. *Flores* parvi, 2 mm. lati. *Sepala* 4, parva, ovata. *Petala* majora, 4, triangularia, acuta, staminodiis 4 adnatis. *Stamina* 4, filamentis æquilongis complanatis versus apices attenuatis. *Discus* pulviniformis. *Ovarium* 4-lobum. *Stylus* staminibus æqualis, filiformis. *Stigma* capitatum, bilobum. *Cocci* 4, ovati, bivalves, 4 mm. longi, glanduliferi, monospermi, endocarpio soluto. *Semen* tenuissimum, parvum, ala lanceolata obtusa.

Camp VI *b*, 3900 ft., and Camp VI *c*, 5500 ft.

The genus *Terminthodia* was founded by myself on a shrub obtained on Gunong Tahan in the Malay Peninsula. It is allied to *Evodia*. Its distinctive characters were its alternate simple leaves and winged seeds. In this species the leaves are opposite, and there is, so far as I can see, but one (instead of two) winged seeds in each coccus. The habit and general form of the flowers are the same in both species, except that I see in this species four staminodes alternating with the stamens each consisting of a short filament adnate to the petal and an abortive triangular anther.

Bouchardatia cyanosperma, Ridl., sp. nov.

Frutex ramis tenuibus patentibus partibus juvenilibus hirtis. *Folia* tenuia, subherbacea, lanceolata, acuminata, basi angustata, 12 cm. longa, 2·5 cm. lata, glabra, nervis 14 paribus intra margines anastomosantibus, petiolis angulatis 1 cm. longis hirtis. *Racemi* in axillis superioribus 1·5 cm. longi, floribus parvis paucis albis 4 mm. longis. *Sepala* parva, 4, ovata, lanceolata, acuta, pubescentia. *Petala* 4, oblonga, obtusa, quam sepala multo longiora apicibus incurvis. *Stamina* 8, quam petala breviora, filamentis latis planis, antheris basifixis parvis ellipticis. *Torus* cylindricus, angulatus. *Ovarium* 4-lobum, in apice tori. *Stylus* brevis, crassus. *Stigma* parvum, globosum, rubrum. *Cocci* 2, endocarpio soluto cartilagineo albo, 7 mm. longi, acuti. *Semina* globosa, 5 mm. longa, atrocyanea, nitida.

Canoe Camp, 150 ft.

The genus *Bouchardatia* was founded by Miquel for *Melicope neurococca*, F. Muell., a native of Australia. This species differs from that in the narrow lanceolate leaves.

Acronychia murina, Ridl., sp. nov.

Arbor. Folia coriacea, obovata, obtusa vel retusa basi in petiolos decurrentia, 4 cm. longa, 2 cm. lata, marginibus incrassatis, nervis 9 paribus tenuibus et vix conspicuis, petiolis gracilibus 1·2 cm. longis. *Flores* 2–3 in pedunculo rigido erecto 1·5 cm. longo, pedicellis 8 mm. longis. *Sepala* parva, 4, orbicularia. *Petala* 4, linearia, oblonga, obtusa, recurva, apicibus incurvis, intus carinata, in margine pubescentia, 6 mm. longa. *Stamina* 8, pubescentia, filamentis linearibus complanatis acuminatis marginibus pubescentibus, antheris ellipsoideis parvis. *Ovarium* lageniforme, glabrum, stylo crassiusculo staminibus breviore. *Torus* cylindricus, costatus. *Fructus* pyriformis, acutus, 4-angulatus, 4-locularis (vix maturus).

Camps XIII to XI, 8300 ft.

The flowers of this plant when boiled exhale a most powerful odour of mice, whence the scientific name.

BURSERACEÆ.

Santiria acuminata, Schum. Fl. Kais. Wilhelmsl. 64.

Camp I, 700 ft.

Distrib. Endemic in New Guinea.

MELIACEÆ.

Dysoxylon caulostachyum, Miq. in Ann. Mus. Bat.-Lugd. iv. (1868) 12.

Canoe Camp, 150 ft.

Distrib. Endemic in New Guinea.

The calyx-tube is rather longer than usual in these specimens, and indeed the whole flower is larger, but I suppose it to be only a form of this species.

DYSOXYLON KUNTHIANA, Miq. in Ann. Mus. Lugd.-Bat. iv. (1868) 13.

Camp I, 500 ft.

Distrib. Endemic in New Guinea.

DYSOXYLON HIRTUM, Ridl., sp. nov.

Arbor hirta. *Folia* 30 cm. longa, rachi dense hirta, foliolis ellipticis acuminatis, terminali oblanceolato ad basin angustato, lateralibus 3–16 cm. longis, 4 cm. latis, nervis 15 paribus glabris, costa in pagina superiore hirta infra furfuracea excepta, petiolulis 1 mm. longis hirtis. *Racemus* brevissimus, 5 mm. longus, hirtus, bracteis lanceolatis subacutis hirtis. *Flores* pauci, pedicellis brevibus. *Sepala* pubescentia, ovata, triangularia. *Petala* lineari-oblonga, dimidio inferiore connata, obtusa, extus pubescentia. *Tubus stamineus* cylindricus, longior, 12 mm. longus, apice denticulatus. *Antheræ* 10 inclusæ, lineares, glabræ. *Discus* tubulosus, cylindricus, margine ciliato. *Ovarium* conicum, pubescens. *Stylus* tubo stamineo æquilongus.

Camp I, 700 ft.

Allied to *D. amooroides*, Miq., which it much resembles in the flowers, but it is much more hairy, with brown velvety hairs, and the leaves have more nerves and are narrowed at the base.

AGLAIA RUBRA, Ridl., sp. nov.

Folia subopposita, simplicia, in apice ramorum congesta, tenuiter coriacea, oblanceolata, acuminata, basi obtusa, sessilia, sicca grisea, 18–24 cm. longa, 4–8 cm. lata, superne pilis fasciculatis tecta, subtus nervis horizontalibus 30 elevatis, costa utrinque hirta, nervis pilis fasciculatis rufo-brunneis deciduis tectis. *Panicula* terminalis, 8 cm. longa, ramis brevibus laxifloris hirtis. *Flores* rubri, pedicellis 1 mm. longis hirtis. *Sepala* brevia, ovata, rotundata, 5. *Petala* imbricata, coriacea, elliptica, obtusa, 1·5 mm. longa. *Stamina* 5, in tubum subglobosum connata, extus glabra, antheris oblongis introrsis, loculis subparallelis hirtis haud exsertis. *Ovarium* conicum, rugosulum, in gynophoro brevi cylindrico sessile, glabrum.

Camp I and Camps I to III, 500 ft. "Dull red."

Nearest to *A. simplicifolia*, Harms, but distinguished by the very differently shaped sessile larger leaves with horizontal nerves covered at first with small tufts of brown woolly hairs. These soon fall off, leaving the nerves with a curious undulate appearance. The calyx is also smaller, the petals shorter and wider, the staminal ring is nearly as long as the petals, and the ovary is glabrous.

VAVÆA PAUCIFLORA, Ridl., sp. nov.

Folia oblanceolata, acuta, ad basin angustata, obtusa, subsessilia, 11–16 cm. longa, 4–6 cm. lata, glabra, tenuiter coriacea, nervis 10 paribus ascendentibus. *Flores* cymosi, 2–3 in pedunculo glabro 2 cm. longo axillari. *Bracteæ* parvæ, lanceolatæ. *Calyx* cupuliformis, lobis 5 ovatis acutis pubescentibus 1 mm. longis. *Petala* libera, lanceolata, obtusa, 7 mm. longa, pubescentia. *Stamina* 10 in tubum connata

quam petala breviora, basi disco brunneo cupuliformi adnata, pubescentia, prope bases antherarum albo-hirta, antheris ellipticis longitudinaliter dehiscentibus, apiculo brevi. *Ovarium* subglobosum, hirtum, biloculare; ovula in utroque loculo 2, pendula, collateralia. *Stylus* cylindricus, crassus, apice angustatus, stamina superans, hirtus. *Stigma* capitatum, obscure 5-lobum. *Bacca* globosa, bilocularis, nigra, pubescens, 7 mm. longa, pericarpio crustaceo intus nitido, seminibus 2.

Between Camps I and III, 500 to 2500 ft.

Allied to *Vavæa vitiensis*, Seem., but with nearly sessile leaves, the petiole being winged nearly to the base, and very few flowers in a small cyme. The ovary seems clearly to be only 2-celled, not 4-celled as in the other species, with two seeds in each cell. The two or three known species of the genus occur in the Fiji Islands, and have petioled leaves and long-peduncled corymbs of flowers.

OLACINEÆ.

Lepionurus pubescens, Ridl., sp. nov.

Folia alterna, subremota, tenuiter coriacea, ovata, longe acuminata, basi cuneata, glabra, 13–15 cm. longa, 7 cm. lata, nervis tenuibus 5 paribus, petiolis 3 mm. longis. *Spicæ* axillares singulæ vel binæ, pubescentes. *Bracteæ* lanceolatæ, deflexæ, hirtæ, diu persistentes. *Flores* parvi, 3 mm. lati, dissiti, sessiles, hirti. *Sepala* 5, minuta, ovata, hirta. *Petala* 5, triangularia, acuta, extus hirta. *Stamina* 5, petalis opposita, extus discum inserta, filamentis brevissimis, antheris ovatis triangularibus. *Discus* quadratus, breviter 4-lobus.

Camp VI *b*, 3900 ft.

This differs from *Lepionurus sylvestris*, Bl., in its hairy inflorescence of sessile flowers and the lanceolate persistent bracts.

ICACINEÆ.

Pentastira, Ridl., gen. nov.

Arbores. *Folia* alterna, coriacea vel membranacea, glabra, petiolata. *Cymæ* axillares, breves, paucifloræ, floribus parvis. *Sepala* 5, ovata, carinata, pubescentia. *Petala* 5, breviora, libera, linearia, oblonga, retusa, faciebus internis carinatis. *Stamina* 5, sepalis opposita, filamentis brevibus, antheris introrsis parvis. *Ovarium* hirtum, uniloculare. *Stylo* nullo.

Species 2.

Pentastira flava, Ridl., sp. nov.

Arbor. *Folia* elliptica, lanceolata vel obovata, acuminata, basi cuneata, membranacea, 10·5–13 cm. longa, 4·5 cm. lata, nervis 5-paribus subtus elevatis, petiolis 3 mm. longis. *Cymæ* 3 cm. longæ, pubescentes. *Bracteæ* minutæ, lineares, hirtæ. *Pedicelli* 1 mm. longi, hirti. *Sepala* 5, ovata, apice acuta, inflexa, pubescentia,

in dorso carinata, secundum marginem tenuiora, 2 mm. longa. *Petala* 5, fere æquilonga, anguste oblonga, apice emarginata, carina elevata, versus apices latiora, glabra. *Stamina* fere æquilonga, filamentis brevibus, antheris conicis. *Ovarium* conicum, obtusum, hirtum.

Canoe Camp, 150 ft.; Camp VI *a*, 3100 ft.; and Camp VI *b*, 3900 ft. "Flowers deep yellow."

PENTASTIRA NITIDA, Ridl., sp. nov.

Rami rigidi. *Folia* lanceolata, acuminata, cuspidata, apice obtusa, basi cuneata, coriacea, nitida, 11 cm. longa, 2·7 cm. lata, nervis 5–7 intra margines anastomosantibus, petiolis 2–3 mm. longis. *Cymæ* breves, paucifloræ, 5 mm. longæ, pubescentes. *Pedicelli* 1 mm. longi. *Bracteæ* parvæ, lineares, pubescentes. *Sepala* 5, ovata, obtusa, carinata, basi subgibbosa, 2 mm. longa. *Petala* breviora, oblonga, apice bifida, facie interna carinata. *Stamina* petalis æquilonga. *Ovarium* pubescens.

Camps I to III, 500 to 2500 ft.

The flowers of this species are almost identical with those of the preceding, but the foliage is entirely different. The young parts of the branches are pubescent. The leaves are lanceolate and quite stiff and coriaceous, while those of *P. flava* are quite thin and elliptic to ovate. The sepals in both species are ovate, valvate, and erect, thickened in the centre, the thickening being widest at the base and narrowing upwards. The valvate petals are shorter, linear-oblong, with a keel running along the inner face and becoming more developed towards the apex, where it is nearly equal in width to the half of the petal. The ovary is very small and hairy, unilocular.

The affinity of the plants seems to be with *Apodytes*, but they have the keeled petals of *Villarezia*, though differing from that genus in the valvate sepals and petals.

POCILLARIA, Ridl., gen. nov.

Arbor vel frutex. *Folia* alterna, coriacea, elliptica, petiolata, glabra. *Spicæ* graciles, pubescentes, floribus parvis sessilibus, bracteis minutis. *Calyx* gamosepalus, brevissimus, 5-dentatus. *Corolla* urceolaris, lobis 5 ovatis acutis. *Stamina* 5, sepalis opposita, filamentis brevissimis, antheris longioribus oblongis. *Pistillum* cylindricum, albo-hirtum.

Species unica.

POCILLARIA PUBESCENS, Ridl., sp. nov.

Rami ad apices pubescentes. *Folia* tenuiter coriacea, elliptica, cuspidata, basi cuneata, glabra, 17 cm. longa, 5·5 cm. lata, nervis 11 paribus subtus elevatis, nervis secundariis fere æque conspicuis, reticulationibus in utraque pagina conspicuis, pedicellis 1 cm. longis. *Spicæ* graciles, singuli, axillares, pubescentes, 6 cm. longæ, floribus sessilibus parvis dissitis. *Bracteæ* minutæ, hirtæ. *Calyx* orbicularis, pubescens, dentibus brevibus 5. *Corolla* gamopetala, campanulata, extus pubescens,

2 mm. longa, lobis 5 acutis ovatis. *Stamina* ad basin corollæ adnata, glabra, 5 filamentis brevibus, antheris majusculis oblongis obtusis longitudinaliter dehiscentibus. *Ovarium* dense albo-hirtum, cylindricum.

Camp I, 700 ft.

This plant differs from the genus *Phlebocalymna* in the short campanulate corolla, the petals being completely connate.

Leucocorema, Ridl., gen. nov.

Frutex vel arbor. *Folia* magna, membranacea, alterna, hirta, obovata, marginibus undulatis obscure dentatis, petiolis longis. *Racemi* hirti, axillares, foliis breviores, unisexuales. *Flores* masculi parvi, in fasciculis dissitis pedicellatis. *Sepala* 5–2, exteriora ovata, pubescentia, 3 interiora lanceolata. *Petala* 5, breviora, lanceolata, undique albo-hirta. *Stamina* 5, alterna, filamentis brevissimis, antheris longis elliptico-oblongis petalis fere æquilongis. *Discus* albo-hirtus. *Flores* fœminei non visi.

Leucocorema latifolia, Ridl., sp. nov.

Partes juveniles pilis flavis tectæ. *Folia* obovata, breviter cuspidata, obtusa, basi angustata, 20 cm. longa, 13 cm. lata, nervis 9-paribus in utraque facie flavo-hirtis, subtus nervulis etiam flavo-hirtis, petiolis 5 cm. longis hirtis. *Racemi* 9 cm. longi, flavo-hirti. *Flores* parvi, pedicellis fasciculatis 1 mm. longis. *Sepala* 2, exteriora fasciculo pilorum flavorum ad apices ornata, interiora sparse pubescentia. *Petala* minora, dense pilis albis tecta. *Stamina* filamentis minimis subulatis, antheris loculis majusculis linearibus flavidis, connectivo depresso. *Discus* vix elevatus, pilis albo-sericeis tectus.

Camp I, 500 ft.

Perhaps nearest to *Mappia*, but the hairy membranaceous leaves, the very small white hairy petals, and the imbricate coriaceous sepals make it quite distinct.

Gomphandra impressa, Ridl., sp. nov.

Folia parva, coriacea, late lanceolata, breviter obtuse vel subacute acuminata, basi angustata, 6 cm. longa, 2·5 cm. lata, nervis tenuissimis circiter 6 paribus cum nervulis et reticulationibus æque conspicuis superne impressis subtus elevatis, costa prominula, marginibus incrassatis, petiolis 1·5 cm. longis gracilibus. *Cymæ* axillares, laxæ, 2·5 cm. longæ, 3 cm. latæ. *Flores* ad apices ramorum subumbellati, pedicellis 2 mm. longis. *Bracteæ* ad bases pedicellorum, ovatæ, appressæ. *Sepala* 5, ovata, rotundata, marginibus ciliatis. *Petala* 5, oblonga, apice recurva, glabra, 3·5 mm. longa, fere ad basin libera, glabra, costa media intus paullo elevata. *Stamina* 5, filamentis glabris quam petala brevioribus, antheris oblongis dorsifixis. *Ovarium* hirtum. *Stylus* cylindricus, crassiusculus. *Stigma* capitatum. *Ovarium* biloculare, ovulis binis.

Camps X to XI, 6700 to 8300 ft.

Distinguished by its coriaceous finely-reticulate polished leaves, and glabrous stamens. The inflorescence is finely pubescent.

ILICINEÆ.

Ilex Havilandii, Loesener, Monogr. Aquifol. 423. *I. vaccinioides*, Stapf, in Trans. Linn. Soc., ser. 2. Bot. vol. iv. (1894) 140.

Camps XI to XII, 8300 to 11,000 ft.

Closely resembling the variety *subenervis*, but with somewhat broader petals and longer stamens.

Distrib. Borneo.

CELASTRINEÆ.

Perrottetia nervosa, Ridl., sp. nov.

Ramuli tenues. *Folia* alterna, 1–2 cm. remota, membranacea, ovata vel ovato-lanceolata, acuminata, basi rotundata, in marginibus obscure remote crenato-denticulata, processubus atris remotis minutis, 10·5–11·5 cm. longa, 4–6·5 cm. lata, nervis superne depressis subtus conspicue elevatis circiter 7 ascendentibus longe a margine arcuatim anastomosantibus, nervulis transversis et horizontalibus elevatis paucis, petiolis 5–7 longis. *Paniculæ* axillares, graciles, 3 cm. longæ, ramis brevibus minute glandulosis. *Bracteæ* minimæ, ovatæ. *Pedicelli* brevissimi. *Sepala* 5, ovata, acuta. *Petala* lanceolata, acuta, duplo breviora. *Stamina* alterna, brevia, sepalis æquilonga, antheris obcordatis. *Ovarium* ovcideum, biloculare, ovulis 2 in utroque loculo erectis. *Stylus* crassiusculus, cylindricus. *Stigmata* 2, brevia, crassa, recurva. *Discus* crassus, marginibus elevatis. *Bacca* pisiformis, 2 mm. longa. *Semina* 4, brunnea, pustulosa, dorso convexo, ventro angulata.

Camp VI *a*, 3100 ft.

Allied to *P. alpestris*, Blume, but distinguished by the few prominent nerves of the leaves.

Perrottetia grandifolia, Ridl., sp. nov.

Folia alterna, membranaceo-coriacea, remota, glabra, elliptico-ovata, acuminata, acuta, basi breviter cuneata, 13–16 cm. longa, 6·5–8 cm. lata, nervis tenuibus subtus elevatis 7 paribus, arcuatim anastomosantibus, petiolis 1 mm. longis. *Paniculæ* 2 cm. longæ, axillares, puberulæ, pedunculis 1 cm. longis, ramis brevibus 4–5. *Bracteæ* minutæ, lanceolatæ. *Flores* minimi, 1 mm. lati. *Sepala* 5, ovato-lanceolata, acuta. *Petala* tenuiora et longiora, lanceolata, acuta. *Stamina* 5, alterna, filamentis minimis margine disco adnatis, antheris elliptico-ovatis. *Ovarium* in disco semi-immersum. *Stylus* brevissimus, cylindricus. *Stigma* capitatum. *Discus* crassus, latus.

Camp I, 700 ft.

Distinct in its large quite entire leaves, and the thick disc, to which the very short stamens are attached.

PERROTTETIA CAUDATA, Ridl., sp. nov.

Frutex virgatus. *Folia* alterna, coriacea, elliptica, abrupte caudata, obtusa, basi cuneata, 7 cm. longa (cauda 2 cm.), 2 cm. lata, nervis utrinque prominulis paribus ad 17, petiolis 1·5 cm. longis. *Racemi* (vel paniculæ) graciles, laxi, parviflori et pauciflori, 2–3·5 cm. longi, basi longe nudi. *Bracteæ* minutæ, lanceolatæ, obtusæ. *Flores* remoti, pauci, 2 mm. lati, pedicellis 1 mm. latis. *Sepala* 5, minuta, ovata, obtusa. *Petala* 5, paullo longiora, oblonga, obtusa. *Stamina* 5, filamentis brevibus crassiusculis apicibus attenuatis, antheris ovatis acutis. *Discus* complanatus, angustatus, tenuis. *Pistillum* conicum, stylo brevi.

Camp VI *b*, 3900 ft.

Very different in foliage from most species of the genus, but closely resembling *P. alpestris*, Blume, in the form of the flower.

AMPELIDEÆ.

CISSUS (§ TETRASTIGMA) VIRIDESCENS, Ridl., sp. nov.

Caulis gracilis, haud lignosus, nec lenticulatus. *Folia* trifoliata, glabra (sicca brunnea), herbacea, lanceolata, elliptica, basi vix angustata, obtusa, in marginibus sparse denticulata, 9 cm. longa, 5 cm. lata, nervis 8 paribus, petiolulis 4–5 cm. longis, petiolo 4 cm. longo. *Cymæ* parvæ, axillares, pedunculis gracilibus 1·5 cm. longis, ramis paucis brevibus pubescentibus. *Flores* perparvi, 1 mm. longi, in pedicellis pubescentibus 1 mm. longis. *Sepala* brevia, rotundata, pubescentia. *Petala* 4, multo longiora, lanceolata, acuta, pubescentia. *Stamina* minuta. *Pistillum* breve, conicum.

Canoe Camp, 500 ft. "Flowers greenish white."

Allied to *C. papuana*, Miq. and *C. pergamacea*, Blume, but with thinner lanceolate leaflets and very small flowers.

CISSUS GRANDIFOLIA, Warb. in Engl. Bot. Jahrb. xviii. (1893) 199.

Canoe Camp, 150 ft. "Flowers yellowish white."

Distrib. Endemic in New Guinea.

CISSUS CONCHIGERA, Ridl., sp. nov.

Caulis rufo-hirtus. *Folia* simplicia, alterna, ovata, cuspidata, cordata, marginibus sinuatis cum processubus aculeiformibus in apicibus nervorum, 8 cm. longa, 5·5 cm. lata, supra glabra costa depressa hirta excepta, subtus in nervis et nervulis rufo-hirta, nervis 8 paribus, petiolis 2 cm. longis rufo-hirtis. *Stipulæ* orbiculari-oblongæ, hirtæ, planæ, 3 mm. longæ et æquilatæ. *Cymæ* compositæ, axillares et terminales, pedunculis 1–2 cm. longis hirtis. *Pedicelli* 2 mm. longi, graciles. *Calyx* cupuliformis, ore integro, pubescens. *Petala* 4, libera, oblonga, obtusa. *Discus* rotundatus, lobatus. *Pistillum* conicum, protrusum. *Stylus* filiformis, longiusculus.

Camp VI *a*, 3100 ft.

Allied to *C. Forsteniana*, Miq., but much more hairy, and the leaves of thicker texture. The stipules are very curious, being round, flat, and hairy, resembling in shape some kinds of shells.

LEEA SUNDAICA, Miq. Fl. Ind. Bat. iii. 610.
Canoe Camp, 150 ft.; and Camp I, 700 ft. A rather more hairy form than usual.
Distrib. Malay Archipelago.

SAPINDACEÆ.

CARDIOSPERMUM HALICACABUM, Linn. Sp. Pl. ed. 1, 366.
Camp VI *b*, 3900 ft.
Distrib. Tropical Asia.

ALLOPHYLLUS LÆTE-VIRENS, Ridl., sp. nov.
Arbor (?) glabra. *Folia* trifoliata, petiolis teretibus 12 cm. longis; foliolis membranaceis læte-virentibus glabris subtus nitidis oblanceolatis acuminatis basi angustatis, marginibus parce et remote dentatis, 12 cm. longis, 5 cm. latis, nervis 9 paribus, petiolulis 2 mm. longis. *Paniculæ* axillares 10 cm. longæ, ramis inferioribus 3 cm. longis, floribus copiosis congestis, pedicellis 1 mm. longis. *Sepala* 4, lanceolata, obtusa, unum ovatum bis latius quam cetera. *Petala* 4, linearia, spathulata, apicibus dilatatis lanuginosis. *Stamina* 8, ad pistillum appressa, filamentis linearibus, antheris ovoideis rotundatis. *Discus* lobatus, majusculus. *Ovarium* pubescens, stipitatum, conicum, stigmatibus longis recurvis.
Camp VI *a*, 3100 ft.

This species is allied to *A. glaber*, Radlk., but it has much larger thinner leaves drying bright green, with shorter denser panicles of larger flowers. The specimens bear, on the lower branches of the panicle, curious conical hairy galls 5 mm. long and terminated by the abortive perianth. Each contained a dipterous larva.

POMETIA PINNATA, Forst. Char. Gen. 110.
Canoe Camp, 100 ft.
Distrib. Ceylon, Malay Peninsula and Islands.

DICTYONEURA BAMLERI, Laut. & Schum. Fl. Deutsch. Schutzgebiete Südsee, 421.
Canoe Camp, 150 ft.
Distrib. Endemic in New Guinea.
Rather more velvety than in the original description, but probably this plant.

HARPULLIA CUPANOIDES, Roxb. Hort. Beng. 86.
Canoe Camp, 150 ft.
Distrib. Malay Peninsula and Islands.

DODONÆA VISCOSA, Jacq. Enum. Pl. Carib. 19.
Camps VIII to IX, 4900–5500 ft.

I do not think it is usual to find this plant at such an altitude in the Malay region; it is common at sea-level.

Distrib. Tropics of both hemispheres.

ANACARDIACEÆ.

SEMECARPUS ROSTRATA, Valeton, Bull. Dep. Ind. Néerl. x. 29, Ic. Bogor. t. 359.

Canoe Camp, 150 ft.

Distrib. Endemic in New Guinea.

SEMECARPUS HIRTIFLORA, Ridl., sp. nov.

Folia alterna, oblanceolata vel obovata, acuminata, basi gradatim attenuata, obtusa, coriacea, subtus grisea, 18 cm. longa, 9 cm. lata, superne omnino glabra costa hirta excepta, nervis 10–12 paribus subtus hirtis, petiolis 2 cm. longis hirtis. *Racemus* terminalis, brevis, 3·5 cm. longus, rachi flavo-hirta. *Flores* brevissime pedicellati, pedicello crassiusculo hirto. *Bractea* lanceolata, flavo-hirta. *Sepala* 5, parva, ovata, hirta, obtusa. *Petala* multo longiora, lanceolata, acuta, 4 mm. longa, extus hirta, patentia. *Stamina* 5, brevissima, filamentis tenuibus glabris, antheris parvis subglobosis. *Discus* tenuis, planus. *Ovarium* majusculum, semiglobosum, dense flavo-hirtum, 1-loculare. *Styli* 3, validi, divergentes, decurvi; stigmatibus conspicuis bilobis atris subglobosis. *Drupa* cordata, acuta, hirta, viridis, 2 cm. longa, ad basin 1·5 cm. lata, hypocarpio obconico hirto 1 cm. longo flavo.

Canoe Camp, 150 ft.

This species is allied to *S. Cassuvium*, Roxb., of the Moluccas, and to an undescribed species from Borneo, differing from both in the oblanceolate leaves and more hairy flowers. In the Borneo species the whole inflorescence is covered with red velvety hairs. This group of the genus is distinct from the typical Semicarpi, in the greater size of the flowers and the longer nearly valvate petals.

LEGUMINOSÆ.

(By E. G. BAKER.)

DESMODIUM ORMOCARPOIDES, DC. Prod. ii. 327.

Canoe Camp, 150 ft.

Distrib. India, Ceylon, Malaya, Philippines.

DESMODIUM SINUATUM, Blume ex Baker, in Hook. fil. Fl. Brit. Ind. ii. 166.

Camps VIII to IX, 4000–5500 ft.; Camps III to VI, 2500 ft.

Distrib. India, Malay Islands.

PUERARIA PILOSISSIMA, Bak. fil., sp. nov.

Caulis volubilis, pilosus, teres vel subteres. *Folia* pinnatim trifoliolata, foliolis ovato-rhombeis apice acuminatis basi rotundatis vel subcordatis, terminalibus

æquilateralibus lateralibus inæquilateralibus, omnibus subtus tomentosis margine pilosis, nervis lateralibus 8–10, nervulis permultis tenuibus conjungentibus. *Stipulæ* angustæ, pilosæ. *Flores* numerosi, fasciculato-racemosi. *Bracteæ* lineari-lanceolatæ, acuminatæ, caducæ, floribus longiores. *Bracteolæ* parvæ, lineares, calyce breviores. *Calyx* pilosus, calycis dentibus 2 superioribus in unum coalitis tubo brevioribus. *Vexillum* suborbiculare, obovatum, apice emarginatum, basi unguiculatum, supra basin bicallosum. *Alæ* oblongæ, basi unguiculatæ; carina alas subæquans. *Ovarium* lineari-hirsutum, multi-ovulatum. *Legumen* ignotum.

Canoe Camp, 150 ft.

This plant is noticeable on account of the pilose stems and glaucous green foliage. Leaflets 10–15 cm. long, 5–8 cm. broad. Flowers numerous, fasciculate-racemose, the rhachis slightly nodose. Calyx ± 8 mm. long, teeth 3–4 mm. long. Standard 10–11 mm. long, apex emarginate, ±10 mm. broad. Wings and carina ±10 mm. long.

Several species of *Pueraria* have been already described from New Guinea, but these seem to require a little revision. *P. novoguineensis*, Warb., is identical with *P. Thunbergiana*, Benth., and *P. sericans*, K. Schum., in the 'Index Kewensis,' is considered as synonymous with *P. phaseoloides*, Benth. In *P. textilis*, Laut. & K. Schum., the calyx is only 4 mm. long, that is much shorter than in *P. pilosissima*.

PHASEOLUS NOVOGUINEENSIS, Bak. fil., sp. nov.

Caulis pilis plus minus obtectus. *Folia* pinnatim trifoliolata, stipellata, foliolis terminalibus æquilateralibus ovato-lanceolatis lobatis, lobo medio majore, basi cuneatis apice subacuminatis, foliolis lateralibus inæquilateralibus latere exteriore lobatis utrinque pilis minus obtectis. *Flores* pauci, ad apicem pedunculorum fasciculato-racemosi. *Bracteolæ* ovatæ, acutæ. *Calyx* brevis, lobis obtusis brevibus. *Vexillum* suborbiculare, basi unguiculatum. *Alæ* oblongo-obovatæ, basi calcaratæ, unguiculatæ; carinæ rostrum tortum. *Ovarium* lineare, multi-ovulatum. *Legumen* ignotum.

Camps VII to VIII, 3600–4900 ft.

Stem more or less pilose. Terminal leaflets 7–8 cm. long, trilobed, middle lobe longest, lateral leaflets lobed on the exterior side, 6–7 cm. long. Flowers few at the end of a moderately long peduncle. Calyx 4–5 mm. long, lobes 1·5–2·0 mm. long. Standard ±14 mm. long. Wings moderately spurred. Keel about 12–14 mm. long. Allied to *P. calcaratus*, Roxb. Quite distinct from *P. papuanus*, Pulle.

VIGNA PAPUANA, Bak. fil., sp. nov.

Herba annua, suberecta, ramosa. *Stipulæ* lanceolatæ, longitudinaliter striatæ, infra insertionem paullo productæ. *Folia* pinnatim 3-foliolata, stipellata, foliolis terminalibus æquilateralibus ovato-lanceolatis apice acuminatis basi cuneatis, lateralibus inæquilateralibus ovatis subacuminatis haud lobatis. *Flores* lutei, pauci, ad apicem pedunculorum fasciculato-racemosi. *Bracteolæ* lineares. *Calyx* dentibus inferioribus lanceolatis margine ciliatis, 2 superioribus in unum coalitis. *Vexillum* suborbiculare, basi unguiculatum, apice emarginatum. *Alæ* inæquilateraliter

oblongo-obovatæ, basi calcaratæ. *Carina* dorso rotundata. *Stigma* introrsum, laterale. *Ovarium* elongatum, pubescens, lineare, multi-ovulatum.

Camp III.

An annual, in our specimen about 17 cm. high. Leaflets terminal, 40–50 mm. long, lateral 30–45 mm. long, 13–20 mm. broad. Peduncles 4–7 cm. long, few-flowered. Bracteoles linear, as long as or slightly longer than the calyx. Calyx ± 6 mm. long. Standard ± 10 mm. long, rather broader than long. Ovary longitudinally grooved. Pod not seen.

Allied to *Vigna luteola*, Benth., differing by the stipules being inserted slightly above the base.

Dolichos Lablab, Linn. Sp. Pl. ed. 1, 725.

Camp III, 2500 ft.; Camps VIII to IX, 4900–5500 ft.

Distrib. Tropics of the Old World.

ROSACEÆ.

(By H. N. Ridley.)

Rubus glomeratus, Blume, Bijdr. 1111.

Camps I to III, 150 to 500 ft.; Camp VI *b*, 3900 ft.

Distrib. Malay Peninsula and Islands.

Rubus glomeratus, Blume, var. grandiflorus, Ridl., var. nov.

Folia ovata, cordata vel basi integra, superne glabra, subtus ochracea, furfuracea, nervis appressis hirtis. *Inflorescentia R. glomerati typici*, sed pedicellis validis 1–1·7 cm. longis hirsutissimis. *Sepala* ovata, cuspidata, 6 mm. longa, 4 mm. lata, ad basin dense et longe hirta. *Petala* fere æquilonga.

Camp VI *b*, 3900 ft.; Camp VI *c*, 5500 ft.

Another long-pedicelled form but less hairy and with the flowers resembling those of typical *R. glomeratus* was obtained at Camps VII and VIII. *R. glomeratus* is a widely dispersed species in the Malay Archipelago and Peninsula, generally found at some altitude, and varies considerably; but amongst all the specimens I have seen, I have met with none with the peculiar long stout pedicels, nor with the distinctly cuspidate sepals, characteristic of this variety. The leaves are less hairy than is usual in this species; in some specimens they show rudimentary lobing.

Rubus integrifolius, Ridl., sp. nov.

Frutex scandens, caulibus velutino-hirtis sparse aculeatis, aculeis brevibus. *Folia* ovata, apice acuta, basi breviter cuneata in marginibus breviter dentata, 3–5·5 cm. longa, 2–3·5 cm. lata, coriacea, superne glabra, nervis 4 paribus et reticulationibus elevatis dense rufo-lanuginosis, aculeis costæ paucis parvis. *Stipulæ* oblongæ, laciniatæ, 0·5 mm. longæ, 0·2 mm. latæ, extus dense hirtæ. *Panicula* terminalis, brevis, dense ferrugineo-hirta, pedicellis crassis 1–1·5 cm. longis. *Sepala* ovata,

cuspidata, 0·8 mm. longa, 0·6 mm. lata, extus lanuginoso-hirta. *Petala* sepalis breviora, spathulata, obovata, apice lato rotundata, retusa, dente medio minimo. *Stamina* breviora, plurima. *Carpella* ad 12, basi lata, rotundata, superne ascendentia, curva, stylo longiusculo.

Camps X to XI, 6700 to 8300 ft.

Nearest to *R. rugosus*, Buch.-Ham., but the leaves are quite entire and cuneate at the base, not cordate, and the flowers are larger and long-pedicelled.

RUBUS ROSÆFOLIUS, Sm. Pl. Ic. Ined. iii. t. 60.

Camp VI *a*, 3100 ft.; Camps VII to VIII, 3600 to 4900 ft.; Camps IX to XI, 4900 to 8300 ft.

A pubescent form, with the terminal leaflets unusually narrow and acuminate.

Distrib. Malay Peninsula and Archipelago.

RUBUS FERNANDI-MUELLERI, Focke, in Abh. Naturw. Ver. Brem. xiii. (1895) 165.

Camps XI to XII, 8300 to 11,000 ft.

Distrib. British New Guinea.

RUBUS PARADOXUS, Ridl., sp. nov.

Suffrutex scandens, glabra inflorescentia excepta, caulibus aculeis validis munitis. *Folia* trifoliata, rigide coriacea, sicca, brunnea, foliolis orbicularibus vel ellipticis obtusis vel cuspidatis, medio majore basi rotundato, marginibus denticulatis aculeatis, 4–6 cm. longis 3 cm. latis, nervis 5 paribus superne depressis subtus elevatis, petiolulis 2 mm. longis, petiolis 2·5 cm. longis armatis. *Racemus* vel paniculæ binæ axillares, armati, 3 cm. longi, lanuginosi. *Bracteæ* lanceolatæ, extus lanuginosæ. *Flos* stellatim expansus, 9 mm. latus. *Sepala* 5, ovata, oblonga, obtusa, utrinque lanuginosa, 4 mm. longa. *Petala* mox decidua, oblonga, obtusa, sepalis æquilonga, dimidio latitudinis, lanuginosa. *Stamina* circiter 24, disco lævi. *Carpella* 12, conica, stylo brevi, ad basin albo-lanata. *Drupæ* 6–8, 3 mm. longa in sicco. *Semina* complanata, ovata, rugosa.

Camps VIII to IX, 4900 to 5500 ft.; Camps XIII to XIV, 10,500 to 12,500 ft.

A very peculiar plant, of which there are two forms, the one from the highest altitudes being much condensed with smaller stiffer leaves, and much more thorny, the stem, midrib and petioles of the leaves and rachis of the inflorescence being densely armed with hooked thorns. The petals are for half their width or more covered with a woolly pubescence like the sepals, and apparently fall off shortly after the flower opens. The sepals then spread open in a star-like fashion. The stamens and pistils are comparatively few, the latter very small, and surrounded at the base by hairs.

POTENTILLA PARVULA, Stapf, in Hook. Ic. Pl. t. 2293, and in Trans. Linn. Soc. ser. 2. Bot. vol. iv. (1894) 147.

Camps XIII to XIV, 10,500 to 12,500 ft.

This seems to be a very variable species. At Camp XIII was obtained a very small-

leaved form, the leaves nearly sessile and subglabrous; one from Camp XIV was a compact, very silky-haired form, with the stem and the short sessile leaves covered with dense long silky white hairs. The flowers are yellow.

Distrib. Mt. Kinabalu, Borneo.

SAXIFRAGACEÆ.

ASTILBE PHILIPPINENSIS, Henry in Gard. Chron. ser. 3, xxxii. (1902) 155.

Camps IX to X, 5500 to 6700 ft. "Flowers pinkish."

Distrib. Philippines.

It differs slightly from the form of the Philippines in its narrow sepals.

SPIRÆOPSIS CANARIIFOLIA, Ridl., sp. nov.

Hirta. *Folia* opposita, imparipinnata, 14 cm. longa, foliolis 5 coriaceis ellipticis basi rotundatis in marginibus serratis sessilibus, terminali obovato basi cuneato, 7 cm. longo 3 cm. lato, inferioribus paullo minoribus, nervis 9 paribus subtus elevatis dense hirtis, pilis stellatis flavescentibus, superne parce hirtis. *Stipulæ* latæ, caducæ, rotundatæ, hirtæ. *Panicula* in fructu 9–18 cm. longa, hirta, basi 6 cm. longa et nuda, ramis 5 cm. longis. *Sepala* 5, lanceolata, acuta, parva. *Corolla* et genitalia non visi. *Capsula* 2 mm. longa, hirta, in pedicello 1 mm. longo, segmentis 3 ellipticis hirtis dehiscens, stylis 3 persistentibus. *Semina* plurima, tenuia, ellipsoidea, angusta, basi breviter producta, ad apicem ala longiore angustiore munita.

Camps III to VIII and thence to Camp IX, 2000 to 5500 ft.

This differs from *S. celebica*, Miq., in its leaves, which are not cinereo-pubescent, and have fewer nerves. The capsule is trilocular, with three distinct styles, instead of being bilocular with two styles.

The specimens possessing inflorescence are in the very young bud state.

SPIRÆOPSIS POMETIIFORMIS, Ridl., sp. nov.

Glabra. *Stipulæ* latæ, ovatæ, cordatæ, obtusæ, 5 mm. longæ. *Folium* 20 cm. longum, petiolo 5 cm. longo, foliolis 9 coriaceis lanceolatis acuminatis 9 cm. longis 3 cm. latis, petiolulis 2 mm. longis, costa glandulifera, nervis 15 paribus, utraque facie tenuiter reticulatis, sicca virescentia. *Panicula* densiflora, 12 cm. longa, ramis furfuraceis. *Flores* in racemis brevibus copiosi. *Sepala* 5, lanceolata, acuta, parva. *Corolla* et genitalia non visa. *Capsula* 4-locularis, furfuracea, 3 mm. longa, lobis 4 oblongis rostratis dehiscens, stylis 1 mm. longis gracilibus, stigmate capitato. *Semina* fusiformia, apice acuminata, basi producta, longiora.

Camp VI *b*, 3900 ft.

This species, of which no flowers were obtained, is very distinct in the glabrous leaves, resembling those of the genus *Pometia*, and the four-celled fruit with four styles.

POLYOSMA PUBESCENS, Ridl., sp. nov.

Partes juveniles omnino pubescentes. *Folia* opposita, lanceolata, acuminata, basi angustata, cuneata, coriacea, superne glabra, subtus pubescentia, 10 cm. longa, 5·5 cm. lata, nervis 8 paribus cum nervulis hirtis, petiolis 2 cm. longis hirtis. *Racemus* 13 cm. longus, rachi pubescente, floribus pluribus approximatis, pedicellis 1 mm. longis pubescentibus. *Bracteæ* minutæ, lanceolatæ, acutæ. *Ovarium* 1 mm. longum, pubescens. *Sepala* 4, ovata, triangularia, acuta. *Petala* linearia, obtusa, 8 mm. longa. *Stamina* filamentis linearibus hirtis. *Stylus* validulus, glaber, stigmate discoideo.

Camp I, 500 ft.

Nearest to *P. læteVirens*, Griff., of the Malay Peninsula, but the flowers are much longer, and the leaves larger and thinner.

QUINTINIA RIGIDA, Ridl., sp. nov.

Frutex (?) ramis crassiusculis. *Folia* dense approximata, erecta, alterna, rigida, coriacea, oblanceolata vel elliptica, integra, marginibus involutis, apice obtusa, basi breviter cuneata, 5·5–6 cm. longa, 2–2·3 cm. lata, pagina inferiore atro-punctata, costa crassa subtus prominente superne depressa, nervis tenuibus 22 paribus, superne indistinctis, subtus obscuris, petiolis crassis 5 mm. longis. *Racemi* axillares, foliis breviores, 5 cm. longi, rachi angustata. *Flores* parvi, deflexi, plures. *Pedicelli* 1 mm. longi. *Calycis* tubus obconicus, resinosus, lobis 4 oblongis obtusis. *Petala* 4, coriacea, valvata, lanceolata, acuta, 2 mm. longa, patentia. *Stamina* 4, e margine disci orta, filamentis brevissimis subtriangularibus basi latis superne attenuatis, antheris æquilongis ovatis subcordatis, quam petala multo breviora. *Discus* magnus, 4-lobus, lobis obtusis superne excavatis. *Ovarium* conicum, 4-sulcatum, stigmatibus capitatis 5. *Capsula* in pedicello 3 mm. longo nutans, 4-valvis, valvis acutis, sepalis persistentibus.

Camps XI to XIII, 8300 to 10,500 ft.

Allied to *Q. MacGregorii*, F. Muell., of British New Guinea, but with much thicker and more rigid leaves and larger sepals.

ARGYROCALYMNA, Schum. & Lauterb.

This genus was founded by Schumann and Lauterbach (Flora der Deutschen Schutzgebiete in der Südsee, 336) for a plant obtained in Dutch New Guinea with an inferior two-celled ovary and the petals, sepals, and stamens in fours. I add here three others, all of which, though obviously closely allied, have the parts in fives, and a five-celled ovary. Schumann refers the genus to Saxifragaceæ, but I think this affinity very doubtful. The ovary is distinctly inferior, and much resembles that of the Melastomaceæ, especially in *A. flexuosa*, Ridl., which is covered with appressed scale-like trichomes resembling those common in *Melastoma*. The leaves, however, are always alternate and distinctly thorny along the edge.

ARGYROCALYMNA DENTICULATA, Ridl., sp. nov.

Folia alterna, tenuiter coriacea, elliptico-ovata, cuspidata, acuta, basi obtusa, marginibus incrassatis, dentibus aculeiformibus, 13 cm. longa, 5 cm. lata, nervis 10 paribus subtus elevatis in dentes excurrentibus, aciculis minutis in utraque facie, petiolis canaliculatis 6 mm. longis. *Cymæ* trichotomæ, axillares et terminales, hirtæ, 4–5 cm. longæ, patentes. *Bracteæ* angustæ, lineares, lanceolatæ, 2 mm. longæ, hirtæ, pedicellis 4 mm. hirtis. *Calyx* obovoideus, 5-lobatus, 3 mm. longus, hirtus, lobis lanceolatis æquilongis acutis. *Petala* crassa, lanceolata, triangularia, acuta, longiora, pilis albis in medio obsita. *Stamina* 5, breviora, filamentis brevibus extra discum ortis. *Antheræ* oblongæ, obtusæ. *Stylus* pubescens, staminibus altior, stigmate obconico apice obscure lobato. *Discus* annulatus, pilis albis ad basin styli obsitus. *Ovarium* inferum, 5-loculare, ovulis plurimis.

Camp VI *b*, 3900 ft.

The branches of this plant are slightly flexuous. The calyx and branches are covered with flat triangular yellowish trichomes like those of species of *Melastoma*.

ARGYROCALYMNA FLEXUOSA, Ridl., sp. nov.

Caulis lignosus, flexuosus. *Folia* alterna, ovata, acuminata, acuta, margine denticulata, coriacea, superne in sicca virescentia, subtus cinnamomea, undique trichomatibus parvis acutis dissitis scabrida, 10 cm. longa, 4·5 cm. lata, petiolis 5 mm. longis. *Cymæ* quam folia breviores, hirtæ, di- vel trichotomæ, 4 cm. longæ, 3·5 cm. latæ. *Bracteæ* lineares, acutæ. *Pedicelli* 2 mm. longi, hirti. *Flores* parvi, 5 mm. lati. *Calyx* obconica, parva, lobis 5 ovatis lanceolatis acutis latis hirtis, apicibus recurvis. *Petala* 5, lanceolata, carnosa, acuta, extus pubescentia. *Stamina* 5, filamentis crassis. *Discus* obscure lobatus, rotundatus. *Stylus* crassus, stigmate capitato.

Camp VI *b*, 3900 ft.

Distinguished from *A. arborea*, Schum., by its flowers being pentamerous and the cymes much shorter. The disc has curious depressions in a circle on its surface.

From *A. denticulata*, Ridl., it is distinguished by its much smaller obconic, not obovoid calyx-tube, and its larger sepals.

ARGYROCALYMNA MONTANA, Ridl., sp. nov.

Frutex densifolius, ramis copiose lenticellatis. *Folia* congesta, coriacea, rigida, elliptica, oblonga, basibus latis, apicibus rotundatis, appresse denticulata, 2·5–5 cm. longa, 1·5–2 cm. lata, costa superne canaliculata, nervis 5 paribus, petiolis brevibus, crassis 2 mm. longis. *Cymæ* breves, densæ, 2·5 cm. longæ, 3 cm. latæ, dense hirtæ. *Pedicelli* breves, hirti. *Calyx* brevis, latus, semiglobosus, hirtus, lobis ovatis 5. *Petala* 5, lanceolata, intus et extus hirta, fasciculo pilorum alborum in dimidio ornata. *Stamina* 5, glabra, filamentis gracilibus longiusculis, antheris brevibus ovoideis ellipticis. *Stylus* ad basin conicus, validus, hirtus. *Stigma* majusculum, capitatum.

Camp XIII, 10,500 ft.

Allied to *A. flexuosa*, Ridl., in the short calyx-tube, but it is a much more condensed and compact plant, with the petals hairy on both sides, the style stouter and hairy, and the stigma larger.

PYRSONOTA, Ridl., gen. nov.

Frutex virgatus. *Folia* subopposita, coriacea, lanceolata, serrata, spinosa, multinervia, nervis tenuissimis, petiolis brevibus. *Racemi* breves, axillares, hirti. *Bracteæ* lanceolatæ. *Flores* minores, pedicellati. *Sepala* 5, lanceolata, hirta. *Petala* 5, oblonga, glabra, æquilonga, apicibus trilobis. *Stamina* 15 e margine disci 5-lobi orta, filamentis brevibus, antheris oblongis hirtis. *Ovarium* subglobosum, hirtum, biloculare, ovulis 2 in loculo utroque pendulis. *Styli* 2, connati. *Stigma* capitatum, bilobum.

PYRSONOTA CALOPHYLLA, Ridl., sp. nov. (Plate 3. figs. 48–54.)

Rami aureo-hirti. *Folia* longe acuminata, basi breviter cuneata, obtusa, serrata, spinis parvis, 6 cm. longa, 2 cm. läta, superne lævia, subtus aureo-hirta, nervis circiter 40 paribus tenuissimus et cum nervulis et reticulationibus elevatis, petiolis 2 mm. longis. *Racemi* 5 mm. longi, pauciflori. *Bracteæ* minutæ, hirtæ. *Pedicelli* 4 mm. longi. *Sepala* lanceolata, obtusa, 2 mm. longa. *Petala* apice truncata, breviter triloba, lobis obtusis. *Stamina* filamentis liberis pubescentibus.

Camps X to XII, 8300 to 11,000 ft.

This plant is evidently allied to the genus *Platylophus* of South Africa, which it resembles in its lobed petals and 5-lobed disc, but it differs from that in its 15 short stamens in threes, glabrous ovary, and 2-ovuled loculi. From *Gilbeea* of Australia it differs in its fewer stamens, which are long in that genus, whilst it resembles it in the presence of two ovules in each loculus.

HALORAGEÆ.

GUNNERA MACROPHYLLA, Blume, Bijdr. 513.

Camps IX to X, 5500 to 6700 ft.

Distrib. Java and the Philippines.

GUNNERA RENIFORMIS, Ridl., sp. nov.

Herba humilis, rhizomate squamis parvis tecto. *Folia* reniformia, dentata, dentibus brevibus latis truncatis, 1·2 cm. longa, 2 cm. lata, nervis 4 e sinu ortis ramosis subtus hirtis, pagina superiore pilis dissitis tecta, petiolis hirtis 2·5 cm. longis. *Racemi* simplices, graciles, 2·5 cm. longi, rachi hirta. *Flores* glomerulati, superne masculi, inferne fœminei. *Flores* masculi, tubo subcylindrico superne dilatato, laminis 2 dentiformibus, petalis nullis. *Stamina* 2, filamentis brevissimis, antheris ellipticis. *Bracteæ* oblongæ, apiculatæ, ad margines hirtæ. *Flores* fœminei congesti, tubo brevi, dentibus 2 acutis. *Stigmata* subulata, crassiuscula.

Camps XI to XII, 8300 and 11,000 ft.

Allied to *G. cordifolia*, Hook. fil., of Tasmania, but differing in its reniform leaves, more slender inflorescence, and absence of petals.

HALORAGIS SECUNDA, Ridl., sp. nov.

Herba ultra 30 cm. alta. *Caulis* villosus. *Folia* opposita, elliptica, utrinque obtusa, crenulata, coriacea, scabra, 2 cm. longa, 7 mm. lata, subtus hirta, costa crassa hirtiore, petiolis 2 mm. longis. *Panicula* terminalis, ramis horizontalibus 2–4 cm. longis hirtis. *Flores* secundi, plures, pedicellis 1 mm. longis hirtis. *Calycis* tubus ovoideus, 8-costatus, hirtus, 1 mm. longus, lobis 4 lanceolatis acutis. *Petala* 4, oblonga, linearia, 3 mm. longa, apice incurvo hirto. *Stamina* 6, antheris linearibus petalis æquilongis, filamentis minutissimis. *Stigmata* 4, pustulata, sessilia.

Camp VI *b*, 3900 ft.

Allied to *H. tetragyna*, Hook. fil., but larger; with bigger leaves, and larger flowers in secund horizontal racemes.

LEGNOTIDEÆ.

CREMNOBATES, Ridl., gen. nov.

Frutex vel arbor. *Folia* opposita, obovata, serrata, coriacea, petiolata. *Stipulæ* parvæ, crassæ, late ovatæ. *Paniculæ* breves, axillares. *Bracteæ* parvæ, lanceolatæ. *Flores* plures, parvi. *Sepala* 5, valvata, ovata. *Petala* 5, minima, linearia, apice trifida. *Stamina* 10, filamentis brevibus, antheris cordatis. *Discus* majusculus, 10-lobus, lobis obtusis. *Ovarium* conoideum, superum, uniloculare, uniovulatum. *Stylus* brevissimus. *Drupa* unilocularis. *Semen* albuminosum.

CREMNOBATES ILICINA, Ridl., sp. nov.

Folia elliptica, obovata, obtusa, serrata, basi cuneata, læte virentia, 5 cm. longa, 2·8 cm. lata, utrinque tenuiter reticulata, nervis costa crassiuscula excepta inconspicuis, petiolis 3 mm. longis. *Stipulæ* 1 mm. longæ. *Panicula* brevis, 2 cm. longa, glabra, ramis brevibus subverticillatis. *Bracteæ* angustæ, lineares, lanceolatæ. *Pedicelli* 1 mm. longi. *Sepala* ovata, acuta. *Petala* minima, alba, laciniis 3 angustissimis. *Stamina* ex incisuris disci orta, quam sepala breviora, filamentis brevibus, antheris ovatis cordatis nigris. *Ovarium* obtusum, conicum. *Drupa* 8 mm. longa, 4 mm. crassa, cylindrico-ellipsoidea, obtusa, sepalis ad basin persistentibus, pericarpio crasso lignoso. *Semen* ellipsoideum; testa tenuis, brunnea; albumen copiosum, æquabile; cotyledones foliacei.

Camp VI *c*, 5500 ft.

This plant has the habit of an *Elæodendron* with bright yellow-green coriaceous leaves. The small white trifid petals, the stamens rising from the notches of the thick 10-lobed disc, and the superior one-seeded drupe are peculiar characteristics. I know no genus in the order at all closely allied to it.

MYRTACEÆ.

DECASPERMUM NEUROPHYLLUM, Laut. & Schum. Flor. Deutsch. Schutzgebiete d. Südsee, 468.

Camp I, 700 ft.

Distrib. Endemic in New Guinea.

DECASPERMUM PANICULATUM, Kurz, Journ. As. Soc. Beng. xlvi. (1877) pt. 2, 61. Var. LONGIFOLIA, Ridl. (var. nov.). *Nelitris polymorpha*, var. *longifolia*, Blume, Mus. Bot. Lugd.-Bat. i. 75.

Camp I, 700 ft., and Camp VI *c*, 5500 ft.

Distrib. Malay Archipelago.

This is probably only a very glabrous long-leaved form of a very variable species.

MYRTUS KLOSSII, Ridl., sp. nov.

Frutex ramosus, ramis pustulosis. *Folia* opposita, crasse carnosa, elliptica vel obovata, obtusa, marginibus recurvis, 5 mm. longa, 3 mm. lata, subtus glandulis atris punctata, costa depressa subtus elevata, nervis obscuris; petiolis 1 mm. longis. *Flores* singuli vel bini, axillares, pedicellis 5 mm. longis. *Bracteæ* 1–2 ad basin pedicelli sitæ, lanceolatæ, parvæ (sæpe desunt). *Calyx* tubo obovoideo parce albo hirto 1 mm. longo, lobis lanceolatis ovatis pustulatis carnosis 3 mm. longis. *Petala* obovata, sæpe fere reniformia, unguiculata, 4 mm. longa, glandulifera. *Stamina* ad 25, filiformia, petalis fere æqualia. *Stylus* elongatus, filiformis. *Ovarium* biloculare. *Bacca* obovoidea, sepalis magnis coronata, rubra, 1 cm. longa. *Semina* plurima, complanata, lævia, triangulari-subreniformia.

Camps XII to XIII, 10,500 ft.

This species is most nearly allied to *M. pedunculata*, Hook. fil., of New Zealand. It is very aromatic, the flowers being full of glands. The calyx is covered with few greyish appressed hairs.

MYRTUS COMPACTA, Ridl., sp. nov.

Frutex densus, ramis pustulosis. *Folia* obovata, apice et basi rotundata, coriacea, crassa, 2–3 mm. longa, 2 mm. lata, subtus dense glandulifera, petiolis 1 mm. longis. *Flores* axillares, sessiles vel subsessiles. *Bractea* lanceolata, parva. *Calyx* 3 mm. longus, tubo glabro obovoideo, lobis lanceolatis acutis pustulosis. *Petala* 5, sepala paullo superantia, lanceolata vel orbicularia, unguiculata, acuta, glandulifera. *Stamina* circiter 20, quam stylus filiformis, multo breviora. *Ovarium* 3-loculare.

Camps XIII to XIV, 10,500 to 12,500 ft.

Allied to the preceding, but with smaller sessile flowers and shorter stamens, and a glabrous calyx.

MYRTUS NIVALIS, Ridl., sp. nov.

Fruticulus, cortice rufescente squamis tenuibus linearibus delabente. *Folia* opposita, elliptica, obtusa, basi vix angustata, crasse carnoso-coriacea, in utroque latere glandulifera, 4 mm. longa, 2 mm. lata, nervis obscuris, costa superne depressa

subtus elevata, petiolis brevissimis. *Flores* singuli, axillares, 5 mm. in diametro, pedicellis brevissimis. *Bracteæ* lanceolatæ, foliaceæ, binæ. *Calyx* tubo obconico, lobis 5 lanceolatis obtusis glandulosis. *Petala* 5, lanceolata, oblonga, obtusa, haud unguiculata, glandulosa, 15 mm. longa. *Stamina* 15, breviora. *Stylus* longior, crassiusculus. *Stigma* capitatum, subtrilobum. *Bacca* succulenta, rubra, globosa. *Semina* reniformia, pustulata, brunnea.

Camps X to XI, 6700 to 8300 ft.

Apparently a creeping or prostrate plant, with the bark detaching itself in red flakes. The leaves and flowers are much smaller than in the last two species, the petals lanceolate, not distinctly clawed, and the seeds pustulate and reniform.

Backhousia aurea, Ridl., sp. nov.

Frutex (?) ramis parce ramosis pubescentibus, partibus juvenilibus rufo-hirtis. *Folia* opposita, tenuiter coriacea, superne appresse hirta, subtus densius cupreo-rufo hirta, 4·5 cm. longa, 1·5 cm. lata, nervis vix conspicuis, petiolis 2–3 mm. longis. *Flores* in cymas terminales 5 cm. longas dispositi, pedunculis cum ramis hirtis 2 cm. longis. *Alabastra* conica, acuta. *Pedicelli* 2 mm. longi, apice bracteis 2 minimis lanceolatis muniti. *Calyx* brevis, campanulatus, glaber, lobis 5 ovatis rotundatis coriaceis 0·5 mm. longis. *Petala* 5, lanceolata, obtusa, basi angustata, 4 mm. longa. *Stamina* plurima, 7 mm. longa, in annulum perianthio adnatum disposita. *Ovarium* apice depresso-rotundatum, a calyce liberum, biloculare. *Ovula* plurima. *Stylus* crassiusculus, quam stamina longior.

Camps VIII to IX, 4900 to 5500 ft. "Flowers golden."

A new genus for New Guinea, the other known species being Australian. It is very distinct from these in its hairiness.

The ovary is, in the dried specimens at least, quite free from the calyx-tube and only attached at the base.

Rhodamnia parvifolia, Ridl., sp. nov.

Arbor ramis tenuibus parce sericeis, partibus juvenilibus undique sericeis. *Folia* parva, coriacea, glabra, ovata, basi rotundata, apice acuta, 2 cm. longa, 12 mm. lata, utrinque punctata, nervis circiter 4 paribus vix conspicuis, nervis lateralibus 2 e costa ortis a basi 2 mm. remotis inconspicuis, petiolis 1 mm. longis sericeis. *Pedunculi* filiformes, sericei, axillares, 2 cm. longi, uniflori vel cymose triflori, ramis 5 mm. longis. *Bractea* juxta ovarium orta, lanceolato-linearis, 2 mm. longa. *Calycis* tubus globosus, sericeus, 1–2 mm. longus, lobis 5 ovatis acutis sericeis 2 mm. longis. *Petala* parva, ovata, obtusa, alba. *Stamina* brevia. *Stylus* cylindricus, stigmate capitato.

Camp VI *b*, 3900 ft.

Distinct from all other species by the small ovate glabrous leaves, with almost entirely invisible nerves. The two lateral nerves, which are so characteristic in this genus, are almost equally invisible; they rise from the midrib about 2 mm. from its base. The flowers are few and very small on long slender peduncles, some one-flowered

and some ending in a cyme of three flowers. Blume describes a species from New Guinea, *R. glauca,* Mus. Bot. Lugd.-Bat. i. 79. The description is very incomplete, but as the leaves are described as acute at the base, it cannot be this plant.

EUGENIA (§ JAMBOSA) SUBALATA, Ridl., sp. nov.

Rami graciles, 4-alati, alis paullo elevatis. *Folia* tenuiter coriacea, oblanceolata, acuminata, basi cuneata, 10 cm. longa, 2·5 cm. lata, nervis 10–11 paribus, nervo intramarginali a margine 3 mm. remoto, petiolis 2 mm. longis. *Flores* singuli vel bini, terminales in ramis. *Pedunculus* gracilis, 4-angulatus, 1 cm. longus. *Bracteæ* 2, lineares, angustissimæ, 3 mm. longæ. *Pedicellus* 1·5 cm. longus, teres. *Calyx* elongato-turbinatus, in pseudo-pedicellum 5 mm. longum attenuatus, 1·5 cm. longus, lobis 4 ovatis obtusis marginibus scariosis 2 mm. longis. *Petala* orbicularia, 5 mm. longa et lata. *Stamina* 2 cm. longa, antheris linearibus oblongis. *Stylus* gracilis, longior.

Camp I, 700 ft.

Allied to *Jambosa synaptoneura,* Laut. and K. Schum., but differing in the thinner texture of the leaves, the longer pedicels, and the longer calyx-tube with smaller lobes.

EUGENIA (§ JAMBOSA) LONGIPES, Warb. in Engl. Bot. Jahrb. xiii. (1891) 391.

Camp I, 700 ft.

Distrib. Endemic in New Guinea.

The petals and stamens are not described in the publication above quoted. The petals are narrow at the base, obovate, more or less distinctly clawed, 3 mm. long, and apparently pink, the stamens very numerous, 1 cm. long, and the filiform style 2·5 cm. long.

EUGENIA (§ JAMBOSA) GARCINIOIDES, Ridl., sp. nov.

Arbor ramis validulis. *Folia* coriacea, elliptica vel oblanceolata, basi breviter attenuata, obtusa, 7–8·5 cm. lata, sicca cinnamomea, costa prominula, nervis 8 paribus tenuibus utrinque prominulis, intramarginali obscuro, petiolis validis 1 mm. longis atro-rubentibus. *Cyma* infra folia lateralis, lignosa, 4 cm. longa, ramis tribus ramulosis, ramulis 4-floris. *Flores* remoti, pedicellis brevibus crassis 2 mm. longis. *Calycis* tubus infundibuliformis, basi latus, haud costatus, 5 mm. longus, lobis 4 rotundatis coriaceis 2 mm. longis. *Petala* orbicularia, 5 mm. longa, marginibus tenuioribus. *Stamina* breviuscula, 5 mm. longa, antheris ellipticis. *Stylus* validulus, æquilongus.

Camp III, 2000 ft.

Another of the section *Jambosa* with fairly large flowers on the lateral cymes. This species is distinguished by its stiff leaves with fine, rather inconspicuous nerves, the intramarginal one being quite invisible. The leaves suggest those of one of the Garcinias.

EUGENIA (§ JAMBOSA) VANDEWATERI, Ridl., sp. nov.

Folia membranacea, lanceolata, acuminata, basi cuneata, sicca pallida, viridia, 12 cm. longa, 4·5 cm. lata, nervis 5 paribus prominulis, secundariis fere æque prominulis, intramarginali 5 mm. a margine remoto, petiolis crassiusculis 5 mm. longis. *Inflorescentia* lateralis, brevis, paucifloræ. *Pedunculus* validus, 5 mm. longus, pedicellis 4 patentibus crassiusculis 17 mm. longis. *Calycis* tubus infundibuliformis, 1·5 cm. longus, lobis 4 late ovatis triangularibus obtusis 1 cm. longis. *Petala* 4, obovata, obtusa, 1·8 cm. longa. *Stamina* 1·5 cm. longa, copiosa. *Stylus* 2·2 cm. longus.

Launch Camp, at sea-level.

This is allied to *J. oligoneura*, Schum., of New Guinea, but the flowers are twice as large, and the leaves are lanceolate and not obovate. The whole flower is 3 cm. across.

EUGENIA (§ JAMBOSA) SALICINA, Ridl., sp. nov.

Frutex (?) ramis gracilibus. *Folia* salicina, lanceolata, acuminata, obtusa, tenuiter rigide coriacea, 9 cm. longa, 1–1·6 cm. lata, nervis tenuibus plurimis, nervulis fere æque conspicuis, nervo intramarginali tenuissimo marginem appropinquante, petiolis 3 mm. longis. *Flores* singuli, axillares et terminales. *Pedunculus* gracilis, 2·5 cm. longus, internodiis 2–3, bracteis 2–3 linearibus angustissimis 2 mm. longis. *Calycis* tubus angustissime clavatus, basi gradatim incrassatus, tunc abrupte dilatatus, 12 mm. longus, 5 mm. latus, ad apicem tenuiter costatus, lobis 4 late rotundatis ovatis vel orbicularibus 5 mm. longis. *Petala* 4, ovata, orbicularia, 7 mm. longa. *Stamina* 2 cm. longa. *Stylus* paullo longior.

Canoe Camp, 150 ft.

Apparently one of the stream-bank species with narrow willow-like leaves, resembling *E. Heyneana*, Duthie, of the Malay Peninsula. The long, slender, club-shaped calyx-tube is peculiar.

EUGENIA (§ JAMBOSA) DAPHNE, Ridl., sp. nov.

Rami validuli, brunnei. *Folia* congesta, versus apices coriacea, lanceolata, acuminata, acuta vel obtusa, basi rotundata, 13 cm. longa, 3 cm. lata, costa prominula, nervis inconspicuis circiter 8 paribus versus apicem folii obscuris, intramarginali 3 mm. a margine remoto undulato, petiolis crassis nigris 2 mm. longis. *Flores* singuli bini vel terni, umbellati, in pedunculo gracili 4 cm. longo, pedicellis 2 cm. longis. *Calycis* tubus campanulatus, lævis, 5 mm. longus, basi abrupte pseudo-pedicellatus, pseudo-pedicello 1 mm. longo, lobis 4 rotundatis obtusis, marginibus scariosis. *Petala* ovata, obtusa, 5 mm. longa, puncticulata. *Stamina* 1 cm. longa. *Stylus* ultra dimidio longior.

Camp I, 700 ft., and Camps III to VIII, 2000 to 3600 ft.

Distinguished by its smooth lanceolate, nearly sessile leaves with very inconspicuous nerves, usually quite invisible in the upper part of the leaves, and by its flowers being

solitary or more rarely gathered in umbels of two or three, and the long pendulous pedicels.

Allied to *E. salicina*, Ridl.

Eugenia (§ Jambosa) plumea, Ridl., sp. nov.

Rami graciles. *Folia* coriacea, lanceolata, acuta, basi cuneata, 6 cm. longa, 2 cm. lata, subtus punctata, nervis tenuibus inconspicuis circiter 10 paribus, secundariis irregularibus et fere æque conspicuis. *Panicula* terminalis, 4 cm. longa, laxa pauci-ramosa, ramis angulatis 2 superioribus sæpius trifloris. *Calycis* tubus 2 mm. longus, infundibuliformis, pustulosus, lobis ovatis acutis. *Petala* alba, ovata, obtusa, 2 mm. longa, haud calyptrata, separatim caduca. *Stamina* plurima, 3 mm. longa, antheris loculis globosis.

Camp VI *a*, 3100 ft.

This is allied to *Clavimyrtus firma*, Blume; but the leaves are not cuspidate and are fewer-nerved, and the calyx-tube is much shorter and funnel-shaped.

Eugenia (§ Calyptranthes) flavescens, Ridl., sp. nov.

Arbor ramis tenuibus flavescentibus, internodiis 4 cm. longis. *Folia* elliptica, lanceolata, longe acuminata, acuta, basi longe cuneata, sicca superne grisea, subtus flavescentia, 13 cm. longa, 4 cm. lata, nervis copiosis tenuibus inconspicuis, intramarginali margini contiguo, petiolis 5 mm. longis. *Cymæ* infra folia laterales, 3 cm. longæ, 5–6-floræ, pedunculo brevi 2 mm. longo, ramis paucis 4 angulatis et intra angulos sulcatis flavescentibus. *Calycis* tubus turbinatus, rugosus, lucidus, 3 mm. longus, lobis brevibus ovatis rotundatis. *Petala* orbicularia, 3 mm. longa, singulatim caduca. *Stamina* 6 mm. longa, antheris minutis globosis. *Stylus* brevior.

Camp VI *a*, 3100 ft.

This appears to be allied to *E. Jambolana*, Lam., but the flowers are a good deal larger than most of that section and the lanceolate, long, acuminate leaves are very different.

Eugenia (§ Calyptranthes) rubro-punctata, Ridl., sp. nov.

Rami validi. *Folia* coriacea, lanceolata, acuminata, acuta, basi cuneata, 20 cm. longa, 6 cm. lata, costa prominente, nervorum paribus ad 15 prominulis, intramarginali 4 mm. a margine remoto, petiolis crassis 5 mm. longis. *Cymæ* laterales, infra-axillares, 1·5 cm. longæ, ramis 4 brevibus flavescentibus angulatis, floribus 4–6 parvis in cymas dispositis. *Alabastra* 5 mm. longa. *Calycis* tubus 5 mm. longus, e basi angusta gradatim superne expansus, ad apicem 3·5 mm. latus, lobis 4 brevibus ovatis 1 mm. longis. *Petala* ovata, acuta. *Antheræ* subglobosæ. *Stylus* validus, purpureus.

Canoe Camp, 150 ft. "White, speckled pink."

This is allied to *E. Jambolana*, Lam., but the distant fewer prominent nerves distinguish it readily. The leaves dry of a light greenish colour; the calyx is rugose and shining when dry. The specimen is only in bud.

EUGENIA (§ SYZYGIUM) TRIVENIS, Ridl., sp. nov.

Folia tenuiter coriacea, elliptica, acuminata, cuspidata, obtusa, basi cuneata, 12 cm. longa, 5 cm. lata, nervis 8 paribus tenuibus, intramarginali 3 mm. a margine remoto conspicue prominulo, costæ simili. *Panicula* terminalis, 8·5 cm. longa, pedunculo 3 cm. longo, ramis 5 cm. longis. *Bracteæ* binæ, triangulares, acutæ, minimæ. *Calycis* tubus clavatus, lævis, 4 mm. longus, lobis indistinctis 4 dentiformibus brevibus. *Petala* orbicularia, 2 mm. longa, libera, conjunctim cadentia. *Stamina* tenuissima, 7 mm. longa. *Stylus* paullo brevior.

Camps IV to VI, 1100 to 2100 ft.

This has much the foliage of *Jambosa melastomæfolia*, Blume, of Amboina, the intramarginal veins, running from the base of the midrib at some distance from the margin and little thinner than the midrib, giving the leaf a conspicuously three-nerved appearance; but it is a true *Syzygium* with terminal inflorescence, the calyx-lobes reduced to low points, and the petals falling in a mass. The leaves dry to bright brown.

EUGENIA (§ SYZYGIUM) WOLLASTONI, Ridl., sp. nov.

Folia elliptica, cuspidata, basi acuminata, coriacea, lævia, in sicca pallide brunnea, 12 cm. longa, 4 cm. lata, nervis tenuissimis approximatis plurimis, secundariis æqualibus et similibus, intramarginalibus 2 tenuissimis, uno 2 mm. a margine, altero margini propinquo, petiolis canaliculatis 1·5 cm. longis. *Cymæ* lignosæ, laterales, 8 cm. longæ, ramis inferioribus 4–5 cm. longis. *Pedicelli* minimi vel nulli. *Calycis* tubus infundibuliformis, costatus, 5 mm. longus, lobis brevissimis ovatis vix distinctis. *Petala* in semiglobum connata, 4 mm. longa. *Stamina* 6 mm. longa, copiosa, antheris minutis oblongis. *Stylus* æquilongus.

Camp I, 700 ft.

Perhaps allied to *E. lepidocarpa*, Wall. The cymes are detached, but appear to have been lateral.

EUGENIA (§ SYZYGIUM) DISPANSA, Ridl., sp. nov.

Rami graciles. *Folia* lanceolata, acuminata, acuta, basi cuneata, tenuiter coriacea, sicca fusca, 15–16 cm. longa, 4 cm. lata, nervis 10 paribus, intramarginali elevato 3 mm. a margine remoto, costa prominente superne depressa, petiolis 5 mm. longis, foliorum majorum crassis sulcatis. *Panicula* laxa, patens, terminalis, pedunculo 1–9 cm. longo, ramis 5–8 cm. longis horizontaliter patentibus tenuibus obscure angulatis apice iterum ramosis, floribus paucis parvis 2 mm. longis in pedicellis 2 mm. longis. *Bracteæ* minimæ, lanceolatæ, caducæ. *Calycis* tubus caryophylliformis, apice dilatatus, 2 mm. latus (staminibus lapsis), lobis nullis, ore integro. *Petala* separatim caduca, alba, ovata, orbicularia, dorso incrassato, marginibus

tenuioribus, 1 mm. longa. *Stamina* pauca, brevia, vix 1 mm. longa, alba, antheris subglobosis.

Camp VI *b*, 3900 ft., and Camp VI *c*, 5500 ft.

Allied to *E. acuminatissima*, Kurz, in the spreading panicle and shape of the calyx. From *E. lævifolia* it differs in the strongly-nerved leaves, which are fuscous and shining when dry.

EUGENIA (§ SYZYGIUM) LÆVIFOLIA, Ridl., sp. nov.

Arbor ramis tenuibus. *Folia* ovata, lanceolata, acuminata, basi rotundata, subcoriacea, lævia, in sicca griseo-viridia, 12 cm. longa, 4 cm. lata, costa subtus prominula superne depressa, nervis circiter 12 paribus, intramarginali margini propinquo, omnibus obscuris, petiolis crassis 5 mm. longis. *Panicula* terminalis, laxa, patens, 9 cm. longa, ramis paucis circiter 3 cm. longis. *Bracteæ* minutæ, ovatæ, acutæ. *Calycis* tubus claviformis, apice subabrupte dilatatus, truncatus, 4 mm. longus, 2 mm. latus, lobis nullis. *Petala* ovata, acuta, medio incrassata, lateribus tenuiora, alba, 1 mm. longa. *Stamina* plura brevissima, antheris subglobosis.

Camp I, 700 ft.

The ovate smooth grey-green leaves, with the nerves almost completely invisible, distinguishes this species from the allied *E. acuminatissima*, Kurz, and *E. dispansa*, Ridl.

EUGENIA (§ SYZYGIUM) SYLVANA, Ridl., sp. nov.

Folia obovata, obtusa vel rotundata, basi cuneata, ad margines revoluta, coriacea, subtus dense punctata, 7–10 cm. longa, 2–4·5 cm. lata, nervis tenuibus, primariis sæpe crassioribus vel omnibus æque distinctis parallelis, costa elevata subtus crassa superne depressa, petiolis crassis 4 mm. longis. *Paniculæ* terminales, plures, pedunculis elongatis, ramis quadrangulatis paucis in apicibus 8 cm. longis. *Calycis* tubus infundibuliformis, 3 mm. longus et æque latus, basi crassus, superne abrupte dilatatus, truncatus. *Petala* calyptrata, rotundata, ovata. *Stamina* brevissima, circiter 20.

Camps III to IV, 1100 to 2500 ft., and Camp VI *a*, 3100 ft.

Allied to *E. acuminatissima*, Kurz, but with thick obovate leaves, with fine parallel and very close nerves, occasionally with some more prominent.

EUGENIA (§ SYZYGIUM) MICRANDRA, Ridl., sp. nov.

Arbor ramis validis. *Folia* crasse coriacea, oblanceolata, obtusa, basi angustata, 14 cm. longa, 5–7·5 cm. lata, costa prominente, nervis plurimis tenuibus, intramarginali undulato 2 mm. a margine remoto, petiolis validis 2 cm. longis. *Panicula* terminalis, densa, 3–7 cm. longa, ramis crassis floribus 5 mm. longis sessilibus pallide flavis. *Calycis* tubus clavatus, basi angustatus, superne dilatatus, 5 mm. longus, lobis 4 rotundatis vix distinctis. *Petala* 4, ovata, 2 mm. longa. *Stamina* brevissima, 20, quam sepala breviora, filamentis roseis crassiusculis. *Stylus* brevis, crassiusculus.

Camp III, 500 ft.

The leaves are very stiff and shiny, and resemble somewhat those of a *Calophyllum*. At the base of the umbel of cymes there is in one specimen a pair of thick oblanceolate sessile leaf-like bracts with a broad base and a strongly developed midrib; they are 2 cm. long and 5 mm. wide. The stamens are remarkably short and few, and the calyx is distinctly prolonged beyond the ovary.

EUGENIA (§ SYZYGIUM) MONETARIA, Ridl., sp. nov.

Frutex multiramosus. *Folia* sessilia, rigide coriacea, sicca pallida (juvenilia rubra), puncticulata, costa subtus ad basin crassa superne depressa, nervis plurimis tenuissimis inconspicuis. *Flores* 3, in cymam terminalem dispositi, pedunculo quadrangulari 8 mm. longo. *Calycis* tubus infundibuliformis, lævis, 5 mm. longus, lobis brevissimis rotundatis. *Petala* ovata, vix ultra 1 mm. longa, lactea. *Stamina* fere 3 mm. longa alba.

Camp III, 2500 ft.

Nearest to *E. kinabaluensis*, Stapf, but the leaves are more distinctly rounded, as long as broad, and the calyx is not cylindric.

EUGENIA SCOLOPACINA, Ridl., sp. nov.

Frutex virgatus, ramis tenuibus pustulatis brunneis. *Folia* coriacea, ovata, longe cuspidata, 2·7 cm. longa, 6 mm. lata, cuspide obtuso 1·5 cm. longo, sicca grisea, superne lævia, subtus flavescentia, punctata, nervis obscuris, costa superne distincta, subtus obscura. *Flores* parvi, axillares, 1–4 in pedicellis pustulosis 1–2 mm. longis, vel plures in pedunculo 1 mm. longo. *Calycis* tubus obtuse obconicus, basi latus, 2 mm. longus, pustulatus, glandulosus, lobis 4 ovatis coriaceis acutis fere æquilongis glandulosis apice pubescentibus. *Petala* ovata, subabrupte unguiculata, 1 mm. longa. *Stamina* 16–20, 3 mm. longa, erecta, rubra, uniseriata, antheris subglobosis. *Stylus* validus, apice subulatus. *Ovarium* biloculare. *Drupa* oblonga, succulenta, rubra, 5 mm. longa.

Camps III to VIII, also V *b*, VI *c*, and IX to XI, 2500 to 8300 ft.

A very singular species with the axillary inflorescence and red pulpy fruit of *Pseudoeugenia*; but it has more than eight stamens. The leaves are red when young, and when adult resemble those of *E. caudata*, King, having an ovate blade with a long narrow blunt point suggesting the outline of a woodcock's head. The nerves are quite invisible, as is the midrib except on the underside at the base. The flowers are closely glandular.

BARRINGTONIA PAPUANA, Laut. in Nova Guinea, viii. II. 314.

Camp I, 500 ft.

Distrib. Endemic in New Guinea.

MELASTOMACEÆ.

(By Edmund G. Baker.)

Otanthera novoguineensis, Bak. fil., sp. nov. (Plate 2. figs. 34–39.)

Rami satis graciles, obscure tetragoni, juniores strigosi. *Folia* oblonga vel oblongo-lanceolata, apice acuta, 7–11·5 cm. longa, 1·8–3·5 cm. lata, 5-nervia, utrinque pilis plus minus strigosa, subtus nervis transversalibus tenuibus, petiolis pilis strigosis 12–15 mm. longis suffulta. *Flores* ad apices ramorum in paniculas dispositi. *Bracteæ* latæ, virides, margine ciliatæ. *Calyx* parviusculus, setulis subpatulis obtectus, tubo ovoideo, lobis angustis. *Petala* margine ciliata, 6–7 mm. longa. *Stamina* æqualia. *Antheræ* oblongo-lineares, 2–3 mm. longæ, connectivo antice bituberculato. *Ovarium* 5-loculare, stylo filiformi. *Baccæ* pro genere parviusculæ, 3·5–4 mm. longæ et latæ.

Camps I to III, 700 ft. In flower and fruit, Nov. 22nd, 1912.

This species differs from *O. cyanoides*, Triana, by its smaller fruits, and from *O. parviflora*, Merrill, by the entirely different bracts. *Leaves* at the base cuneate or rounded. *Bracts* obovate, semiamplexicaul. Flowers pink (Kloss), smaller than in *O. cyanoides*, Triana. This latter species and also *O. bracteata*, Korth., have been recorded for New Guinea.

Melastoma malabathicum, Linn. Sp. Pl. 390.

Camps VII to VIII, 3600 to 4900 ft.

Distrib. India, Malaya, North Australia, Fiji, Admiralty Islands, New Caledonia. Forbes, Nos. 217 & 825, from the Sogeri Region, New Guinea, belong here.

Melastoma barbeyanum, Cogn., in DC. Monogr. Phan. vii. 347.

Camp VIII, 3482 ft.

Distrib. Java.

Medinilla.

Specierum Papuanarum clavis.

A. Frutices glabri vel glabriusculi.

* Folia verticillata.

§ Calycis limbus integer vel subinteger vel obscure 4-undulatus.

o Rami obscure pentagoni. Folia trinervia.

1. *M. Muelleri*, Cogn.

oo Rami breviter multialati. Folia septuplinervia.

2. *M. subalata*, Bak. fil.

ooo Rami teretes vel angulati.

— Flores cymosi.

† Folia anguste obovata, 3–5-plinervia.

3. *M. crassinervis*, Blume.

†† Folia oblonga, 5-plinervia.

4. *M. quintuplinervia*, Cogn.

— — Flores fasciculati vel solitarii.

† Folia lanceolata, triplinervia.

5. *M. triplinervia*, Cogn.

(*M. fasciculata*, Cogn. non Baker.)

†† Folia oblonga vel oblongo-lanceolata, triplinervia.

6. *M. musofo*, Laut. & K. Schum. Kaiser Wilhelm's Land.

— — — Flores in paniculam multifloram dispositi. Folia obovato-oblonga.

7. *M. montana*, Cogn.

** Calycis limbus demum irregulariter fissus.

8. *M. macrocarpa*, Blume. Forbes, Nos. 479 & 940.

** Folia opposita.

— Folia parviuscula, sæpius 10 cm. longitudine non attingentia.

(*a*) Folia ovato-lanceolata, acuminata, 3·5–5 cm. longa. Flores longe pedicellati, solitarii vel bini, tetrameri.

9. *M. myrtiformis*, Triana, var. *papuana*, Bak. fil.

(*b*) Folia ovato-lanceolata, 3- vel sub-5-plinervia, 5–9 cm. longa. Flores axillares, aggregati, breviter pedicellati.

10. *M. ramiflora*, Merrill.

(*c*) Folia ovata, 5-plinervia, 3–6 cm. longa, petiolata. Flores fasciculati, tetrameri.

11. *M. tenuipedicellata*, Bak. fil.

(*d*) Folia ovato-lanceolata, 4–7 cm. longa, longiuscule acuminata, sessilia. Flores in cymas 1–2·5 cm. longas dispositi, 4-meri.

12. *M. trinervia*, Cogn.

(*e*) Folia oblonga vel elliptica, 5-plinervia, subsessilia, 6–7·5 cm. longa. Flores in axillis solitarii vel bini, hexameri.

13. *M. hexamera*, Bak. fil.

(*f*) Folia oblonga vel oblongo-lanceolata, 3-plinervia, 7–10 cm. longa, petiolata. Cymæ subumbellatim paucifloræ.

14. *M. nervulosa*, Bak. fil.

(*g*) Folia oblonga vel oblongo-oblanceolata, 3–7-plinervia, 5–9 cm. longa. Paniculæ terminales, 6–20-floræ.

15. *M. rubrivenia*, Bak. fil.

— — Folia majora, magna vel majuscula, sæpius 10 cm. excedentia.

(*a*) Folia oblonga, 3–5-plinervia, petiolata, 9–15 cm. longa. Cymæ longe subumbellatim 2–4-floræ. Caules 4-alati.

16. *M. alata*, Bak. fil.

(*b*) Folia oblonga vel oblongo-obovata, 5-plinervia, subsessilia, 10–14 cm. longa. Flores axillares, solitarii vel bini.

17. *M. coccinea*, Bak. fil.

(*c*) Folia oblongo-lanceolata, 3–5-nervia, sæpius sessilia, 12–16 cm. longa. Cymæ divaricatæ, pluri- vel multifloræ.

18. *M. Forbesii*, Bak. fil.

(*d*) Folia elliptica, sub-5-plinervia, petiolata, 13–20 cm. longa. Cymæ compositæ, divaricatæ, 5–8 cm. longæ.

19. *M. papuana*, Scheffler.

(*e*) Folia elliptica vel ovato-elliptica, subsessilia, 15–17 cm. longa, 5-plinervia. Flores 4-meri, fasciculati.

20. *M. novoguineensis*, Bak. fil.

(*f*) Folia ovato-lanceolata, sessilia vel petiolata, ± 25 cm. longa. Flores fasciculati.

21. *M. Maidenii*, F. v. Muell.

*** Folia alterna, late ovata, vel suborbicularia.

22. *M. anomala*, Cogn.

B. Frutices ad nodos stuposo-barbati vel omnino pilis plus minus obtecti.

— Folia ternata vel quaternata, obovato-oblonga, 7–9-plinervia. Flores in paniculam dispositi.

23. *M. speciosa*, Blume.

— — Folia opposita.

(*a*) Folia ovato-oblonga, 2–3 dm. longa. Flores in paniculam dispositi.

24. *M. Teysmanni*, Miq.

(*b*) Folia elongato-lanceolata, 25–35 cm. longa, sessilia vel subsessilia. Flores in paniculam laxam dispositi.

25. *M. longifolia*, Cogn.

(*c*) Folia oblonga, breviter acuminata, 9–12 cm. longa. Cymæ submultifloræ.

26. *M. rubiginosa*, Cogn.

(*d*) Folia basi subcordata vel rotundata, oblonga vel ovato-oblonga, 7–13·5 cm. longa. Flores in cymas dispositi.

27. *M. auriculata*, Laut.

(*e*) Folia basi cuneata, triplinervia, 8–13 cm. longa. Flores in cymas dispositi, bracteis persistentibus involucrati.

28. *M. sogeriensis*, Bak. fil.

Medinilla subalata, Bak. fil., sp. nov.

Rami lignosi, iis *M. pterocaulæ*, Bl., subsimiles, ad nodos incrassati, in sicco longitudinaliter subalati. *Folia* verticillata, ovata vel oblonga, apice acuminata, basi late cuneata, 7-plinervia, costa subtus furfuracea, 13–16 cm. longa, 5–7 cm. lata, petiolo 10–15 mm. longo suffulta. *Flores* in cymas axillares et paucifloras dispositi, pedicellis gracilibus, pedunculo communi interdum 5–11 mm. longo, pedicellis 3–5 mm. longis. *Calycis tubus* cupuliformis, ± 5 mm. longus, limbo subtruncato. *Petala* inæquilatera, 8–10 mm. longa. *Staminum* connectivum antice bi-auriculatum, postice longiuscule calcaratum. *Stylus* filiformis. *Baccæ* sub-globosæ.

Camps I to III, 700 to 1986 ft.

The branches of this plant are glabrous and longitudinally slightly winged, especially above. The leaves are papyraceous; the outermost of the lateral nerves branches from the midrib close to the base, the innermost about 2 cm. from the base. The cymes are short and few-flowered, about $\frac{1}{5}$ the length of the leaves. The flowers are pentamerous.

It differs from *M. pterocaula*, Blume, in the septuplinerved leaves.

Medinilla myrtiformis, Triana, var. papuana, Bak. fil., var. nov. (Plate 2. figs. 28–33.)

Rami graciles, teretes. *Folia* ovato-lanceolata, opposita, brevissima petiolata, 3-plinervia, apice acuminata, basi late-cuneata, vel rotundata, margine apicem versus serrata, 30–55 mm. longa, 12–22 mm. lata, petiolo 1 mm. longo suffulta. *Flores* 4-meri, in axillis foliorum graciliter pedicellati, pedicellis unifloris rarius bifloris.

Calycis tubus turbinatus, dentibus brevibus; calyx totus 4 mm. longus. *Petala* acuminata, ±7 mm. longa. *Staminum* connectivum antice calcaratum.

Camp VI *b*, 3900 ft.

The leaves are ovate, acuminate and opposite, and generally, but not invariably, longer than the internodes. The flowers are solitary, or rarely in twos, on slender pedicels, often about ⅔ the length of the leaf. The petals are acuminate, and the stamens 8 in number.

In the type of this species (Cuming No. 753 from the Philippines) the leaves are rather longer, and the flowers in 2–6-flowered cymes.

Medinilla ramiflora, Merrill, in Philipp. Gov. Lab. Bur. Bull. xxxv. 35.

Canoe Camp, 150 ft. In flower Dec. 6th, 1912.

Distrib. Philippines.

Medinilla tenuipedicellata, Bak. fil., sp. nov. (Plate 3. figs. 44–47.)

Epiphytica, caulibus inferne radicantibus. *Rami* teretes, ramulis teretibus vel breviter angustatis. *Folia* parviuscula, opposita, ovata, apice sæpius obtusa, basi cuneata, quintuplinervia, rigida, superne glauca, nervulis tenuissimis, 3–6 cm. longa, 2–3 cm. lata, petiolo 5–10 mm. longo instructa. *Flores* tetrameri, ad nodos fasciculati, pedicellis gracilibus 20–30 mm. longis unifloris. *Calyx* urceolatus, verrucosus, ±4 mm. longus, limbo truncato. *Petala* in sicco alba, ±10 mm. longa. *Stamina* 8, connectivum antice breviter auriculatum, postice calcaratum. *Stylus* gracilis. *Bacca* calycis limbo coronata.

Camp VI *c*, 5500 ft.

An epiphyte with opposite leaves, thus differing from *M. quintuplinervia*, Cogn., in which the leaves are quaternate. The flowers are generally 2–6 in a fascicle, with slender pedicels. The calyx-tube and calyx-limb in the dried specimens are much wrinkled or verrucose.

Allied to *M. laurifolia*, Blume.

Medinilla hexamera, Bak. fil., sp. nov.

Arbuscula (?), ramis glabris cortice albido tectis ad nodos parum incrassatis. *Folia* opposita, 5-plinervia, oblonga vel elliptico-oblonga, glabra, subsessilia, apice acuminata, apice ipso obtusa, basi cuneata, 6–7·5 cm. longa, 2–3 cm. lata. *Flores* in axillis pedicellati, pedicellis teretibus calyce longioribus folio multoties brevi oribus. *Calyx* campanulatus, extus furfuraceus, ± 4 mm. longus, limbo truncato. *Petala* 6, inæquilatera, late obovata, ± 8 mm. longa. *Stamina* 12, connectivo postice calcarato. *Stylus* filiformis. *Bacca* urceolata, 6–7 mm. diam.

Camp not stated.

This species is allied to *M. megacalyx*, Merr., *M. fasciculata*, Cogn., and *M. macrocarpa*, Blume, but the leaves are opposite and not verticillate. It is also allied to *Medinilla Whitfordii*, Merr. (*Carionia triplinervia*, Rolfe) from the Philippines.

The leaves are glaucous above, and pale green below. The flowers are hexamerous

and the petals markedly unequal-sided. They are solitary in the upper axils or pseudo-terminal. The above species, together with *M. megacalyx*, Merr., form a transition between the genera *Medinilla* and *Carionia*.

MEDINILLA NERVULOSA, Bak. fil., sp. nov.

Rami teretes, graciles, glabri, sursum leviter angustati, ad nodos parum incrassati. *Folia* triplinervia, opposita, oblongo-lanceolata, apice acuminata, basi cuneata, costa subtus conspicua, 6–9 mm. longa, 25–28 mm. lata, petiolo 5–8 mm. longo suffulta. *Flores* mediocres, in cymas paucifloras et laxas dispositi, pedunculo communi 20–25 mm. longo, pedicellis 7–9 mm. longis. *Calyx* urceolatus, dentibus brevibus, in toto ± 5 mm. longus. *Petala* 8–10 mm. longa. *Staminum* connectivum postice calcaratum. *Baccæ* ignotæ.

Camps VII to VIII, 3600 to 4900 ft.

The branches are terete, somewhat angled above, with a light-coloured bark. The lateral nerves branch from the midrib 5–8 mm. from the base, the longitudinal nerves being connected by transverse slender nerves. The cymes are pseudo-umbelliform and few-flowered, and the flowers pentamerous.

Allied to *M. laurifolia*, Blume. It differs from *M. alata*, Bak. fil., in its shorter peduncles and smaller leaves.

MEDINILLA RUBROVENIA, Bak. fil., sp. nov. (Plate 2. figs. 40–42.)

Rami glabri, cortice albido tecti, ad nodos parum incrassati. *Folia* opposita, sessilia, oblonga vel oblongo-oblanceolata, 5-plinervia vel 7-plinervia, apice acuta, basi cuneata, margine undulata, 5–9 cm. longa, 2–3 cm. lata. *Flores* mediocres, in paniculam terminalem dispositi, pedicellis sæpe rubris calyce longioribus, pedunculo furfuraceo. *Panicula* 4–6 cm. longa. *Calyx* urceolatus, ± 3 mm. longus, limbo truncato. *Petala* ± 10 mm. longa, 4 vel 5, in sicco alba, obovata. *Stamina* 8 vel 10, æqualia, connectivo antice calcarato. *Stylus* filiformis. *Bacca* ignota.

Camp VII, 3600 ft. In flower April 12th, 1913.

This species is noticeable on account of the sessile leaves with red veins. The flowers are in a terminal panicle, which is shorter than the leaves and 6–20-flowered.

MEDINILLA ALATA, Bak. fil., sp. nov.

Frutex (?), ramis in sicco cortice albido obtectis alatis. *Folia* petiolata, oblonga, apice acuminata, basi cuneata, 9–15 cm. longa, 3–5 cm. lata, superne glauca, subtus viridia, nervis longitudinalibus nervis tenuibus transversis conjunctis, petiolo 5–10 mm. longo suffulta. *Flores* pentameri, in cymas 2–4-floras pseudo-umbellatas et longe pedunculatas dispositi, pedunculis 35–40 mm. longis, pedicellis 8–13 mm. longis calyce 2–4-plo longioribus. *Calycis* tubus cupuliformis, dentibus brevibus; calyx in toto ± 5 mm. longus. *Petala* in sicco alba, ± 14 mm. longa. *Staminum* connectivum postice calcaratum. *Stylus* filiformis. *Baccæ* calycis limbo coronatæ.

Camp VI *c*, 5500 ft.

The noticeable features of this plant are the winged stem, the oblong petiolate acuminate leaves, the lateral nerves branching from the midrib 15–20 mm. from the base. The cymes are lax, few-flowered, and borne on long slender peduncles about one-third the length of the leaves. This species is allied to *M. chionantha*, Stapf (in Kew Bull. 1906, p. 73) from Perak and to *M. laurifolia*, Blume.

MEDINILLA FORBESII, Bak. fil., sp. nov.

Frutex scandens (*fide* H. O. Forbes). *Rami* teretes, ad nodos incrassati, verrucosi, in sicco cortice plumbeo tecti. *Folia* oblongo-lanceolata vel lanceolata, sessilia vel interdum petiolata, 3–5-nervia, glabra, basi late cuneata, apice acuta, 12–16 cm. longa, 5–5·5 cm. lata, nervo inferiore marginali, costa subtus prominente. *Flores* in cymas divaricatas dispositi, cymis sæpius 2–3 cm. longis axillaribus, pedicellis gracilibus. *Bracteæ* parvæ. *Calyx* in sicco ruber, campanulatus, segmentis brevibus tubo brevioribus, ± 3 mm. longus. *Petala* cuneato-obovata ± 6 mm. longa. *Stamina* 8; antheræ lineari-lanceolatæ, apice 1-porosæ, ± 4 mm. longæ. *Baccæ* in sicco rubræ, subglobosæ, calycis limbo coronatæ.

Camp VI, 2538 ft. In flower January 5th, 1913.

This species was also collected in the Sogeri Region, on Mt. Woriwori, by H. O. Forbes (Nos. 757 and 895, Herb. Mus. Brit.).

This species is noticeable on account of the somewhat warted stem. The leaves are longer than the internodes. The cymes are slender; the common peduncle is often 8–12 mm. long, but sometimes absent. It belongs to the series in which the stems are glabrous, the leaves opposite, the cymes axillary, and the flowers tetramerous.

MEDINILLA PAPUANA, Scheff. in Ann. Gard. Bot. Buitenz. i. (1876) 24 ex descript.

Canoe Camp, 150 ft., Dec. 6th, 1912.

Distrib. New Guinea.

MEDINILLA NOVOGUINEENSIS, Bak. fil., sp. nov.

Rami teretes, ad nodos parum incrassati. *Folia* majuscula, opposita, elliptica vel ovato-elliptica, subsessilia vel in petiolum brevissimum attenuata, 15–17 cm. longa, 7–10 cm. lata, apice obtusa vel emarginata, basi cuneata, internodiis fere duplo longiora, 5-plinervia, costa subtus furfuracea. *Flores* 4 mm. axillares, fasciculati, pedicellis gracilibus 14–17 mm. longis. *Calyx* urceolatus, limbo fere integro, in toto vix 3 mm. longus. *Petala* 4, obovata, parum inæquilatera, ± 10 mm. longa. *Stamina* 8, connectivo antice biauriculato. *Stylus* filiformis. *Bacca* ignota.

Camps VIII to IX, 4900 to 5500 ft. In flower June 13th, 1913.

The distinguishing features of this species are the opposite rather large 5-plinerved leaves, and the 4-merous flowers in axillary fascicles. The pedicels are slender, one-flowered, and much longer than the calyx. The connective is anticously biauriculate. This may be allied to *M. Maidenii*, F. von Muell., a species only known to me from the description.

MEDINILLA COCCINEA, Bak. fil., sp. nov.

Frutex scandens, caulibus teretibus vel subteretibus, ad nodos parum incrassatis. *Folia* opposita, sessilia vel subsessilia, oblonga vel oblongo-obovata, 5-plinervia, apice obtusa vel subacuta, basi cuneata, 10–14 cm. longa, 45–60 mm. lata, nervulis transversalibus inconspicuis. *Flores* axillares, pauci, pedicellati, pedicellis 5–8 mm. longis. *Calycis* limbus truncatus vel subtruncatus. *Petala* 5, concava, in sicco alba, oblongo-ovata, ± 5 mm. longa. *Staminum* connectivum bi-auriculatum. *Baccæ* verrucosæ, ± 5 mm. diam. et longæ.

Canoe Camp, 150 ft. In flower June 12th, 1913.

Branches covered with a reddish-brown bark, somewhat warted. Leaves opposite, sessile or subsessile. Flowers few, pedicellate at the nodes.

Noticeable on account of the few shortly pedicellate flowers, the 5-plinerved leaves, and the warted fruit. Closely allied to *M. novoguineensis*, Bak. fil., but the calyx is longer, and there are fewer flowers.

MEDINILLA SPECIOSA, Blume, in Flora, xiv. (1831) 515.

Camp I, 700 ft.

Distrib. Moluccas, Java, Sumatra, Penang.

MEDINILLA LONGIFOLIA, Cogn. in DC. Monogr. Phan. vii. 597.

Canoe Camp, 150 ft.

Distrib. New Guinea.

MEDINILLA AURICULATA, Lauterbach, in K. Schum. und Lauterbach, Nachträge Fl. Deutsch. Schutzgebiete Südsee, 328.

Camps I to III, 500 to 2500 ft. Flowers pinkish white. Fruit purple.

Distrib. New Guinea.

[MEDINILLA SOGERIENSIS, Bak. fil., sp. nov.

Frutex ramis teretibus præcipue novellis plus minus strigosis ad nodos incrassatis stuposo-barbatis. *Folia* opposita, triplinervia, ovata vel oblongo-ovata, apice acuta, basi cuneata, papyracea, 8–13 cm. longa, 4–8 cm. lata, nervulis transversalibus inconspicuis, petiolis 10–14 mm. longis. *Cymæ* axillares, paucifloræ vel plurifloræ, breviusculæ, petiolis sæpe subæquilongæ. *Flores* bracteis persistentibus involucratæ. *Calycis* limbus brevis, obsolete dentatus. *Petala* 5, concava, ± 5 mm. longa. *Stamina* 10, æqualia. *Baccæ* subglobosæ, setulis albido-argenteis omnino obtectæ.

Distrib. In the Sogeri Region, at 3000 ft., *H. O. Forbes*, Nos. 305 & 596 (Herb. Mus. Brit.).

This species belongs to the section *Dactyliota* with persistent bracts enveloping the flowers. It is allied to *M. hirsuta*, Merr. A large shrub with the branches more

or less strigose and stupose-barbate at the nodes. Cymes generally few-flowered. Calyx short. Flowers rose-pink or reddish purple (*H. O. Forbes*). Petals ovate. Noticeable on account of the fruit being covered with white silvery hairs.]

MEMECYLON EDULE, Roxb. Corom. Pl. i. t. 82.

Canoe Camp, Nov. 12th, 1912.

Distrib. India, Ceylon, Tonkin, Malacca, Malaya.

MEMECYLON NOVOGUINEENSE, Bak. fil., sp. nov.

Rami graciles, teretiusculi, ramulis angustis glabris. *Folia* parviuscula, oblonga vel oblongo-ovata, apice in acumen longum attenuata, basi acuta, in petiolum brevissimum attenuata, omnino glabra, 50–70 mm. longa, 16–20 mm. lata, 1-nervia, nervulis transversalibus valde indistinctis, petiolo 2–5 mm. longo instructa. *Flores* pauci, axillares, tetrameri. *Calycis* tubus campanulatus, dentibus triangularibus acuminatis. *Petala* et *stamina* in speciminibus mihi obviis delapsa. *Stylus* tenuis, filiformis. *Baccæ* subglobosæ, apice calyce coronatæ, breviter pedicellatæ.

Camp III, 2538 ft.

This plant belongs to the section *Eumemecylon* and to the series in which the leaves are 1-nerved, with very indistinct transverse nerves. Branches terete, branchlets angled. Leaves very acuminate, base cuneate. Flowers few, axillary, sessile or subsessile, tetramerous. Calyx 1–1·5 mm. diam., the teeth acuminate and conspicuous.

Allied to *M. lanceolatum*, Cogn., and *M. gitingense*, Elmer.

ONAGRACEÆ.

(By H. N. RIDLEY.)

JUSSIÆA SUFFRUTICOSA, Linn. Sp. Pl. 555.

Canoe Camp, and Camps VI *a* to VI *b* to VII & VIII.

Var. HIRTA, Ridl., var. nov.

A typo distat foliis hirtis.

Camps VIII to IX, 150 to 5500 ft.

Distrib. All the tropics.

EPILOBIUM PAPUANUM, Ridl., sp. nov.

Caules ascendentes, sæpe ramosi, 15 cm. alti, furfuraceo-pubescentes. *Folia* subcoriacea vel coriacea, alterna, approximata, ovata vel elliptica, obtusa, glabra, 3-4 mm. longa, 2 mm. lata, petiolis 1 mm. longis vel brevioribus alatis. *Flos* unicus, terminalis, in pedicello gracili 6–9 cm. longo. *Sepala* lanceolata, acuta, glabra, 2 mm. longa. *Petala* oblonga, apice biloba, lobis rotundatis, 3 mm longa, rosea vel atro-rosea. *Stamina* breviora, vix pistillum superantia, antheris ellipticis. *Ovarium* 2·5 cm. longum, pubescens. *Stylus* crassus, stigmate magno. *Capsula* angusta, cylindrica, 3 cm. longa. *Semen* oblongum, utrinque obtusum, pustulatum, coma 7 mm. longa.

Camps IX to XI, 5500 to 8300 ft.

Var. ALPESTRE, Ridl., var. nov.

Caules crassiores, breviores, glabri. *Folia* magis approximata, magis coriacea, 5 mm. longa, 2 mm. lata, petiolis 1 mm. longis. *Pedicellus* 1–2 cm. longus. *Flos* major, atro-roseus. *Sepala* 4–6 mm. longa. *Petala* 9–10 mm. longa. *Ovarium* 0·5 mm. longum.

Camps XII to XIV, 10,500 ft. Flowers magenta.

Another specimen is much taller, 20 cm., with rather distant leaves 1 cm. long and 0·5 mm. across. This came from Camp XIII. The same species occurs on the Owen Stanley Range at 17,000 ft., collected by MacGregor, and on Wharton Range by Giulianetti, and was referred by F. von Mueller to *E. pedunculare*, A. Cunn., a very different plant. Warburg's *E. prostratum*, from the Finisterre Mountains, New Guinea, is also distinct.

CUCURBITACEÆ.

(By H. N. RIDLEY.)

TRICHOSANTHES PAPUANA, Pulle, in Nova Guinea, viii. II. p. 406.

Camp I, 500 ft.

Distrib. Endemic in New Guinea.

MELOTHRIA INDICA, Lour. Fl. Cochinch. p. 35.

Camps VII to VIII, 3600 to 4900 ft.

Distrib. Indo-Malaya.

BEGONIACEÆ.

(By H. N. RIDLEY.)

BEGONIA (§ PETERMANNIA) RHODANTHA, Ridl., sp. nov.

Caulis elatus, ultra 45 cm. longus, hirtus. *Folia* lanceolata vel ovata, obliqua, acuminata, serrato-dentata, versus basin angustata, superne glabra, subtus in nervis hirta, 11 cm. longa, 6 cm. lata, petiolis 0·5 cm. longis. *Stipulæ* lanceolatæ, caudatæ, hirtæ. *Panicula* erecta, terminalis, gracilis, 8 cm. longa. *Bracteæ* angustissimæ, lineares, hirtæ, acutæ. *Pedicelli* 5–8 mm. longi, hirti. *Flores masculi* plures. *Sepala* 2, ovata, rotundata, obtusa, rosea, 5 mm. longa et lata, in dorso sparse hirta. *Antheræ* in capitulo subsessili globoso, circiter 60, lineari-oblongæ, obtusæ, haud apiculatæ, ad basin angustæ, brunneæ. *Flores fœminei* 2, ad basin paniculæ. *Capsula* obtriangularis, basi angustata, apice truncata, angulis superioribus acutis, 1·7 cm. longa, 1·5 cm. lata, alis æqualibus, loculis 4 mm. latis.

Canoe Camp, 500 ft.; Camps I to III, 2500 ft. "Deep pink; hairs carmine."

Allied to *B. torricellensis*, Schlecht., but more hairy, with smaller flowers and the fruit narrowed towards the base.

BEGONIA (§PETERMANNIA) VANDEWATERI, Ridl., sp. nov.

Herba alta, ramosa, internodiis longis. *Folia* elliptica, ovata, acuminata, parce et breviter dentata, tenuia, glabra, basi rotundata et valde inæqualiter lobata, 14 cm.

longa, 5 cm. lata, costa in dorso parce pubescente, petiolis 1·5 cm. longis sæpe hirtis. *Stipulæ* lineares, acuminatæ, basi vaginantes, glabræ. *Flores masculi* 2 in racemo, pedunculo glabro 3 cm. longo, pedicellis hirtis 3 cm. longis. *Bracteæ* caducæ, non visæ. *Sepala* 2, elliptica, oblonga, basi rotundata, 2 cm. longa, 1·2 cm. lata. *Andrœcium* globosum, subsessile, antheris linearibus oblongis circiter 50. *Flores fœminei* 2, in pedicellis 4 cm. longis. *Sepala* 4, exteriora 2 obovata, rotundata, 2 cm. longa, 1·5 cm. lata, interiora lanceolata, oblonga, 1·5 cm. longa, 0·7 mm. lata. *Styli* 3, stigmatibus bifidus lineari-cylindricis tortis hirtis. *Capsula* nutans, glabra, basi vix angustata, apice truncata, 1·5 cm. longa, ad apicem 2 cm. lata, rectis alis æqualibus brevibus.

Camps VII to X, 3600 to 6700 ft.

Allied to *B. Lauterbachii*, Warb., but the flowers are much bigger and fewer, and the fruit more narrowed at the base.

Begonia (§ Diploclinium) pentaphragmifolia, Ridl., sp. nov.

Herba ascendens, caule herbaceo furfuraceo sæpe superne hirto ad 40 cm. alto. *Folia* ovata, acuminata, basi inæqualia et angustata, margine undulata, remote et parce serrata, glabra, 12 cm. longa, 6·4 cm. lata, nervis hirtis, petiolis brevissimis 2 mm. longis furfuraceis. *Stipulæ* glabræ, lanceolatæ, caudatæ, carinatæ, 1·2 cm. longæ. *Racemus* 4 cm. longus, triflorus. *Bracteæ* ad basin lanceolatæ, caudatæ, stipulis angustiores. *Flores masculi* 3, in pedunculo 1·5 cm. longo, pedicellis roseis 1–1·5 cm. longis. *Sepala* 2, ovata, orbicularia, glabra, alba, 5 mm. longa, 7 mm. lata. *Stamina* ad 26 in capitulum sessile aggregata, antheris brevibus obovatis pyriformibus obtusis. *Flos fœmineus* unicus. *Capsula* in pedicello 1 cm. longo, cordata, semiovata, 1·5 cm. longa, margine superiore recta, alis æqualibus latis rotundatis obtusis 5 mm. latis, loculis 1 cm. longis 5 mm. latis ellipticis.

Canoe Camp, 150 ft.; Camps I to III and III to IV, 500 to 1100 ft. "Flowers white with a pink centre. Leaves dark green above, brown-crimson beneath."

Begonia (§ Diploclinium) flexicaulis, Ridl., sp. nov.

Caulis flexuosus, gracilis, hirtus, capillis rufis. *Folia* oblongo-lanceolata, acuminata, basi inæqualia et rotundata, margine parce denticulata, dentibus pilos singulos gerentibus, superne olivacea, margine pallidiora, subtus purpurea, superne parce hirta, 6–7 cm. longa, 2 cm. lata, subtus nervis hirsutis, petiolis 1 mm. longis. *Stipulæ* oblongæ, abrupte caudatæ, 5–8 mm. longæ, cauda 3 mm. longa glabra. *Racemus* axillaris, gracilis, glaber, pedunculo 3–8 cm. longo. *Bracteæ* parvæ, lanceolatæ, acutæ, caudatæ, 3 mm. longæ. *Flores masculi* parvi, 3 mm. lati, albi. *Sepala* orbicularia. *Andrœcium* distincte stipitatum, antheris 15 brevibus ellipticis subsessilibus. *Capsula* inæqualiter bialata, 1 cm. longa, 9 mm. lata, ad apicem angustata, glabra, stylis ad basin connatis terminata, alis parvis, majore 4 mm. longa subtriangulari obtusa, altera rotundata, obtusa.

Camps I to III, 500 to 2500 ft.

Another specimen of what appears to be the same species has hairy leaves with a male

flower 2 cm. across, the sepals were more oblong and the stipes of the andrœcium much longer; it was collected at Camp VI *a*, at 2900 ft.

BEGONIA (§ DIPLOCLINIUM) FRUTICELLA, Ridl., sp. nov.

Suffrutex ramosus, altus, ramis gracilibus rufo-barbatis. *Folia* opposita et sæpius alterna, oblonga, lanceolata, acuminata, basi valde inæqualia et rotundata, irregulariter biserrata, superne pilis crispis rufis tecta, 6–9 cm. longa, 2–4 cm. lata, subtus parce hirta nervis dense rufo-barbatis exceptis, petiolis hirtis 5 mm. longis. *Stipulæ* oblongæ, abrupte caudatæ cauda laminæ æquilonga, 1 cm. longæ, carina pilis longis munita. *Racemus* brevissimus, terminalis, bracteis lanceolatis abrupte cuspidatis hirtis 1 cm. longis pluribus. *Flores masculi* pauci, pedicellis hirtis bracteas æquantibus. *Sepala* 2, oblonga, ovata, ad basin angustata, apice rotundata, extus parce hirta, 8–10 mm. longa, 3–8 mm. lata, alba. *Andrœcium* elongatum, stipite distincto, antheris circiter 22 parvis ellipticis obtusis haud appendiculatis fere ad bases dehiscentibus. *Flores fœminei* non visi. *Capsulæ* 2 e fasciculo quoque bractearum ortæ, in pedicellis glabris 2 cm. longis nutantes, trialatæ, alis inæqualibus 2 brevioribus oblongis ovatis obtusis 4 mm. longis, una latiore et longiore 2 cm. longa et ad basin 1 cm. lata versus apicem attenuata hirta.

Camps I to III, VI *b*, and VII to VIII, 500 to 4900 ft.

Remarkable for its shrubby habit, the slender stems and branches being woody. The inflorescence is curious in consisting of a sessile tuft of bracts, from which appear two female and one or two male flowers. In the specimens from Camp VII the male flowers are larger and the fruit is hairy all over.

BEGONIA ALBOBRACTEATA, Ridl., sp. nov.

Herba ultra 17 cm. longa, caule superne hirto. *Folia* glabra, ovata, acuta, paulisper ad basin angustata, integra subtus pallidiora, 8 cm. longa, 5 cm. lata, nervis lateralibus utrinque 3–4, petiolis 5 mm. longis hirtis, pilis crispatis longiusculis. *Stipulæ* oblongo-lanceolatæ, cuspidatæ, glabræ, 1 cm. longæ, basi vaginantes. *Racemus* subterminalis vel lateralis, floribus pluribus vel 2–3, pedunculo 1 cm. longo, pedicellis æquilongis. *Bracteæ* oblongæ vel lanceolatæ, cuspidatæ, glabræ, 1 cm. longæ, 4 mm. latæ. *Flores masculi* primo bracteis 2 ovatis acuminatis albis 2 cm. longis 1 cm. latis involuti, bracteis mox deciduis. *Sepala* 2, orbicularia, glabra, alba, 1 cm. longa et lata. *Andrœcium* globosum, sessile, antheris oblongis subretusis ad apicem breviter dehiscentibus. *Flores fœminei* et *capsula* non visi.

Camps I to III, 500 to 2500 ft.

BEGONIA (§ SPHENANTHERA) AXILLIPARA, Ridl., sp. nov.

Herba glabra, 45 cm. vel ultra alta, caule 5 mm. crasso superne ramoso. *Folia* remota, ovata, acuminata, basi rotundata et inæqualia, parce denticulata 9 cm. longa, 5 cm. lata, nervis utrinque 4–5, petiolis gracilibus 7 mm. longis. *Stipulæ* oblongæ, caducæ. *Racemi* breves, axillares, bracteis oblongis truncatis vel obtusis albis 5 mm. longis tecti. *Flores masculi* pedicellis gracilibus 1 cm.

longis. *Sepala* orbicularia, alba, roseo-marginata, 5 mm. longa, 5 mm. lata. *Stamina* circiter 20; antheræ ellipticæ, obtusæ, filamentis gracilibus æquilongæ, ad medium dehiscentes. *Flores fœminei*: *sepala* 5, quorum 2 oblonga, truncata, 4 mm. longa, 3 mm. lata, 3 angustiora. *Styli* 3, liberi, stigmatibus flavis bicornibus divergentibus apice dilatatis. *Capsula* (immatura) succulenta, haud alato, carinis elevatis.

Canoe Camp, 150 ft. "Flowers pale pink to white."

Remarkable for its small flowers appearing solitary from axillary tufts of bracts. The male flowers of the one specimen seen are borne in the upper axils, the female in the lower. The female flower has three inner petals in the only flower I have seen, but this may not be normal. The fruit appears to have been succulent, and not winged as in *B. Roxburghiana*, A. DC.

SYMBEGONIA HIRTA, Ridl., sp. nov.

Herba rufo-hirta. *Folia* ovata basi inæquali vel subreniformia, obtusa vel rotundata, in margine undulata, superne hirta, 4–6 cm. longa, 5 cm. lata, subtus nervis hirtis, petiolis 0·5–2 cm. longis. *Stipulæ* lanceolatæ, obtusæ, dorso hirtæ. *Racemi* 3, terminales, graciles, bracteis albis glabris oblongis tecti, 2·5 cm. longi, glabri. *Flores masculi* in pedicellis 7 mm. longis hirtis. *Sepala* in patinam connata, rotundata, parva. *Stamina* circa 20, libera, antheris oblongis dorsifixis, filamentis longioribus. *Flos fœmineus* ad basin racemi ortus, tubulosus, 5 mm. longus, lobis brevibus. *Styli* ad basin breviter connati, stigmatibus bifidis corniformibus. *Capsula* oblonga, trialata, hirta, basi paulo angustata, alarum apicibus vix in angulos acutos productis.

Camps VIII to IX, 4900 to 5500 ft.

There are two forms of the plant, both gathered in the same district; in one the leaves are obliquely ovate with short petioles, in the other they are almost reniform and symmetrical with longer petioles.

SYMBEGONIA MOOREANA, Irmscher, in Engl. Bot. Jahrb. l. (1913) p. 381, fig. 5.
S. fulvovillosa, Bot. Mag. t. 8409, non Warburg.

Camps III to VI, 2100 to 2500 ft.

The leaves in these specimens are beautifully veined with purple beneath.

SYMBEGONIA GERANIIFOLIA, Ridl., sp. nov.

Herba caule ramoso rufo hirto. *Folia* costa et nervis exceptis glabra, pinnatifida, 4–5 cm. longa, 2 cm. lata, lobis lanceolatis integris vel dentibus 1–2 pilo singulo terminatis decurrentibus oppositis, imis 1 cm. longis 4 mm. latis, superioribus brevioribus. *Stipulæ* lanceolatæ, acuminatæ, cuspidatæ, vaginantes, sæpius glabræ, rarius hirtæ, 5 mm. longæ. *Panicula* terminalis, brevis, 7 mm. longa, gracilis, bracteis ad basin ortis lanceolatis acuminatis papyraceis brunneis stipuliformibus. *Bracteæ* florales 7 mm. longæ, ovatæ, vaginantes, albæ. *Flores masculi* bini in utroque ramo. *Sepala* 2, parva, ovata, oblonga, rotundata, 4 mm. longa. *Stamina*

6 vel 5, filamentis liberis, antheris obovoideis obtusis æquilongis. *Flores feminei* singuli in apice rami, 8 mm. longi, albi; tubus brevis, 2 mm. longus, lobis latis rotundatis. *Stylus* brevis, stigmatibus 3 ad medium bifidis purpurascentibus pubescentibus. *Capsula* (vix matura) 8 mm. longa, loculis ellipticis, alis 3 æqualibus angustis 1 mm. latis, apicibus triangularibus acuminatis 3 mm. longis.

Camps VII to VIII, 3600 ft.

This differs from all other recorded species in having the lanceolate leaves cut up into lobes, like those of some Begonias.

In the collection there is another plant collected between Camps IX and X, at an altitude of 5500 to 6700 ft., which is somewhat similar but quite succulent and glabrous. There is only one male flower on it, which is small and consists of two sepals with a few separate stamens and a large white bract below the flower. There being no female flowers or fruits, it is not possible to decide whether it is a *Begonia* or *Symbegonia*. The flower closely resembles that of another plant with hairy stems collected by Burke in British New Guinea, but this bears a capsule like that of a *Begonia* and not that of a *Symbegonia*. Till completer specimens of these two plants are obtained I am unwilling to give them names.

SYMBEGONIA PULCHRA, Ridl., sp. nov.

Herba ultra 15 cm. alta, caule gracili flexuoso ramoso hirto. *Folia* subsessilia, oblique lanceolata, acuminata, basi valde inæqualiter rotundato-lobata, undulata, dentata, 5–7 cm. longa, 2–3·5 cm. lata, superne glabra subtus hirta, nervis elevatis 9, petiolis hirtis brevissimis ad 2 mm. longis. *Stipulæ* papyraceæ, lanceolatæ, acuminatæ, glabræ, 1 cm. longæ, carinatæ. *Racemus* terminalis, gracilis, flexuosus, 5–6 cm. longus. *Bracteæ* magnæ, ovatæ, albæ, 5 mm. longæ. *Pedicelli* graciles, 1 cm. longi. *Flores masculi* albi. *Sepala* 2, ovata, rotundata, 6 mm. longa, 7 mm. lata, basi extus hirta. *Andrœcium* sessile, globosum, antheris 9. *Flores fœminei* 5 mm. longi, hirti, lobis rotundatis ad basin connatis. *Stylus* brevis, stigmatibus 4 oblongis brevibus latiusculis undulatis. *Capsula* tri-alata, 8 mm. longa, glabra, loculis latis obovatis, alis angustis 1 mm. latis in cornua 2 mm. longa productis.

Camps VII to VIII, and IX to XI, 3600 to 8300 ft.

Allied to *S. bracteosa*, Warb., but differing in the stamens being gathered in a short, globose, sessile head and in having four stigmas. The wings of the capsule are also very narrow in proportion to the loculi. The leaves appear to have been red in the centre.

UMBELLIFERÆ.

(By H. N. RIDLEY.)

HYDROCOTYLE JAVANICA, Thunb. Diss. 17. t. 2.

Camps XIII to XI, 10,500 to 12,500 ft.

Distrib. Tropical Asia.

Oreomyrrhis pumila, Ridl., sp. nov.

Herba cæspitosa, 4 cm. alta, caulibus hirtis. *Folia* 1 cm. longa, vaginis dilatatis lanceolatis acuminatis costatis, petiolis validulis hirtis, lamina pinnata, laciniis 7 fere ad costam fissis oblongis vel lanceolatis acutis hirtis 2 mm. longis. *Pedunculus* 1·5–2 cm. longus, gracilis, hirtus. *Bracteæ* lanceolatæ, acutæ, hirtæ, carinatæ, costatæ, 1 mm. longæ. *Umbella* simplex, triflora, pedicellis bracteis æquilongis. *Flores* minimi. *Fructus* ellipticus, basi angustatus, 3 mm. longus, complanatus, glaber ; juga æqualia, lateralia haud multo prominula. *Stylopodia* subconica.

Camps XIII to XIV, 10,500 to 12,500 ft.

A very small species, with a rather narrow fruit, lanceolate in outline and somewhat compressed.

This genus is spread over South America, Australia, and New Zealand, and another much larger species has been collected in New Guinea.

Œnanthe stolonifera, Wall. Cat. n. 585.

Camps VII to IX, 3600 to 5500 ft.

Distrib. Indo-Malaya and China.

ARALIACEÆ.

(By H. N. Ridley.)

Anomopanax Schlechteri, Schum. und Laut. Nachtr. 332, pl. 13.

Canoe Camp, 150 ft.; Camp VI *b*, 3900 ft., and Camp VI *c*, 5500 ft.

Distrib. Endemic in New Guinea.

Eschweileria elegans, Ridl., sp. nov.

Caulis pallidus, fistulosus, 5 mm. crassus. *Stipulæ* lanceolatæ, acuminatæ, 3·5 cm. longæ. *Folia* palmata, segmentis 7–8 lanceolatis acuminatis basi connatis vel ad basin liberis fere ad costam pinnatifidis 16 cm. longis, lobis 4 lanceolatis acuminatis lateralibus decurrentibus, lobis ad 5 cm. longis 1 cm. latis, nervis prominulis; petiolus gracilis, 16 cm. longus. *Umbella* terminalis, foliis brevior, pedunculo 3 cm. longo, ramis 6 cm. longis. *Bracteæ* persistentes, lanceolatæ, acuminatæ, 1 cm. longæ. *Radii* umbellæ 3 cm. longæ, centralis fructus steriles oblongos pedicellatos 3 mm. longos gerens. *Bracteæ* secondariæ lanceolatæ, acuminatæ, juveniles ad margines hirtæ. *Flores* sessiles, 2 mm. longi, aurantiaci et kermesini. *Calyx* integer, rotundatus, patelliformis. *Corolla* brevis, crassiuscula, lobis inflexis ad apicem connatis. *Stamina* 15. *Stylus* brevissimus, vix distinctus. *Bacca* vix matura, sessilis, 4 mm. longa, oblonga, basi angustata, paullo lateraliter complanata, viridis, 8-locularis.

Canoe Camp, 150 ft.

Allied to *Eschweileria helleborina*, Boerl., of Borneo, but differing in the leaflets being pinnatifid with four lateral acuminate lobes, fifteen stamens, and no distinct style. One specimen, however, has simple leaves, lanceolate and toothed as in *E. helleborina*. Harms, in Pflanzenfamilien, T. iii. Abt. 8. p. 31 (1894), has changed the name of this genus to *Boerlagiodendron* on the ground that the name *Eschweilera* was formerly used

for species of *Lecythis* by Martius; as it is neither spelt nor pronounced in the same way as Boerlage's *Eschweileria*, I see no reason why this latter now well-known generic name should be suppressed.

SCHEFFLERA MONTICOLA, Ridl., sp. nov.

Caulis pallidus. *Foliorum* petioli 3·5 cm. longi; petioluli 1 cm. longi, breviores; foliola 4–5 inæqualiter obovata, rotundata, basi angustata apice lata cum cuspidibus brevibus obtusis 4 cm. longa, adulta glabra, juvenilia dense hirta 2·5 cm. lata, coriacea, lateralibus minoribus nervis 5 paribus intra margines anastomosantibus. *Stipulæ* lanceolatæ, acuminatæ, obtusæ, basi hirtæ, 5 mm. longæ. *Panicula* erecta, simplex, 8–17 cm. alta, rachi pedicellisque pilis stellatis tectis. *Pedunculus* 2 cm. longus. *Umbellæ* 16-floræ, pedicellis 1–2 cm. longis, *floribus* 4–5 mm. longis pilis furfuraceis tectis. *Bracteæ* lanceolatæ, acuminatæ, hirtæ. *Calycis* tubus obconicus, margine obscure 5-lobus. *Petala* 4, 2 mm. longa, oblonga, apicibus inflexis. *Stamina* 4, filamentis elongatis, antheris ellipticis latiusculis. *Stylus* elongatus, dimidio filamenti æquilongus, crassiusculus. *Stigma* capitatum, pubescens. *Bacca* obovoidea, quinquangulata, versus basin angustata, 5-locularis.

Camps X to XI, 6700 to 8300 ft.

Var. LANCEOLATA, Ridl., var. nov.

Foliola 4, oblanceolata, oblonga, versus basin angustata et obtusa, apice paullo angustata, 4–8 cm. longa, 1·5 cm. lata, sicca fusca, nervis crassioribus et cum reticulationibus elevatis, petiolis 2 cm. longis, petiolulis 1 cm. longis vel brevioribus.

Camps XI to XIII, 8300 to 10,500 ft.

There are but two specimens of this species, which differ very much in the form of the leaf, but otherwise are identical.

The species seems most nearly allied to *S. triste* (King).

SCHEFFLERA PORPHYRANTHERA, Ridl., sp. nov.

Folia majuscula, 6–7-foliolata, glabra; foliola tenuiter coriacea, elliptica, breviter obtuse cuspidata, basi rotundata in petiolulis canaliculatis decurrentia, 12 cm. longa, 5 cm. lata, in margine incrassata, nervis primariis tenuibus 5–7 paribus, secundariis paucis fere æque crassis; petioli 20 cm. longi; petioluli 4 cm. longi. *Stipulæ* triangulares, lanceolatæ, obtusæ, ad basin pilis pallidis paucis obsitæ, basi 1 cm. latæ. *Paniculæ* multifloræ, elongatæ, 45 cm. longæ, rachi 2 mm. crassa, pedunculis umbellæ 5 mm. longis. *Umbella* 24-flora, pedicellis 4 mm. longis. *Ovarium* quinquangulatum, obconicum, 5-loculare. *Calyx* vix elevatus. *Petala* 5, oblonga, obtusa, apice acuto inflexo, 1·5 mm. longa. *Stamina* 5. *Antheræ* ellipticæ, violaceæ; filamenta flavescentia, petala superantia. *Discus* planus, marginibus undulatis. *Stylus* brevissimus, stigmatibus parvis obscuris.

Exact locality not recorded.

Allied to *S. Junghuhnii*, Miq.

SCHEFFLERA PAPUANA, Ridl., sp. nov.

Caulis 4 mm. crassus. *Foliorum* petioli teretes, 14 cm. longi, basi paulo dilatati, villosi; petioluli (basales) 1 cm., (centralis) 4 cm. longi; foliola 5–6, valde inæqualia, elliptica, cuspidata, tenuiter coriacea, 5–11 cm. longa, 2–5 cm. lata, nervis 6-paribus. *Paniculæ* 1–2, 6–10 cm. longæ, simplices, rachi furfuracea, umbellis 9–11, pedunculis 1–1·2 cm. longis. *Bracteæ* ad fasciculos pilorum reductæ. *Flores* 15–16 in quaque umbella, pedicellis 2 mm. longis. *Petala* ovata, acuta, 1 mm. longa. *Stamina* 4, filamentis ultra marginem undulatum ovarii productis. *Ovarium* 1·2 mm. longum, campanulatum, costatum. *Stylus* longiusculus, cylindricus.

Camps III to VIII and VI *c*, 2500 to 5500 ft.

Allied to *S. stylosa*, but with elliptic leaves with a blunt base and no lanceolate bracts to the umbels, and a distinct undulate-margined disc. The styles are shorter. The leaves are entire, but in one specimen show signs of toothing. The floral bracts are lanceolate and acuminate.

SCHEFFLERA (§ BRASSAIA) BRASSAIELLA, Ridl., sp. nov.

Foliorum petioli teretes, graciles, 18 cm. longi, basi dilatati, amplectentes; petioli graciles, 3·5 cm. longi; foliola coriacea, oblonga vel ovata, acuminata, basi rotundata, 9–11 cm. longa, 5 cm. lata, supra lævia nervis obscuris, subtus nervis tenuibus inconspicuis 4 paribus. *Panicula* 40 cm. longa; axis 5–7 mm. crassus. *Capitula* in pedunculis validis 1·5 cm. longis, secunda, 1 cm. crassa. *Calyptra* conica, acuta, lævis, 5 mm. longa. *Stamina* 5, filamentis crassiusculis, antheris oblongis. *Discus* conicus, sulcis pluribus. *Ovarium* 5-loculare, 3 mm. longum.

Camps VIII to IX, 4900 to 5500 ft.

This species is most closely allied to *Brassaia actinophylla*, R. Br., of Australia; the leaves, however, are very much smaller; the peduncles of the capitula stouter; the petal cap connate, acute, smooth and not ribbed; the filaments thicker, and like the ovary-cells only 5 in number.

SCHEFFLERA OCTANDRA, Ridl., sp. nov.

Caulis griseus. *Foliorum* petioli teretes, 30 cm. longi, basi incrassati; petioluli graciles, 3–4·5 cm. longi; foliola 4, membranacea, lanceolata, basi acuminata, apice subabrupte acuminata, integra, glabra, 21 cm. longa, 6·5 cm. lata, nervis 6 paribus. *Panicula* debilis, ramis 5–6 remotis furfuraceis. *Bracteæ* ad bases ramorum ortæ, crassæ, lanceolatæ, 1–1·5 cm. longæ, squamis furfuraceis lanceolatis tectæ, apice setosæ. *Umbellæ* sessiles vel brevissime pedicellatæ, paucifloræ, 3–4-floræ. *Flores* parvi, sessiles, albi vel virescenti-albi. *Petala* 4, oblonga, truncata, apice incurva, 1 mm. longa. *Stamina* 8, filamentis brevissimis vix antheras ellipticas rotundatas sulcatas superantibus. *Ovarium* obcuneatum, sessile, 4–5 loculare, 5-costatum, 2 mm. longum.

Canoe Camp, 150 ft. "Flowers white or greenish white."

A very exceptional plant in having the stamens double in number to the petals, and the curious small nearly sessile umbels and very short stamens.

GAMOPETALÆ.

RUBIACEÆ.

(By H. F. Wernham.)

Argostemma bryophilum, K. Schum. in Nachtr. Fl. Deutsch. Schutzg. Südsee, 393 (1905).

Camps III to XI, 2500 to 8300 ft.

Distrib. North-east New Guinea.

Argostemma carstensense, Wernham, sp. nov.

Herba minima, ± 10 cm. alta, subrepens; caulis glaber, foliosus. *Folia* ovalia, ad ca. 19 × 11 mm., nec valde inæqualia, brevissime acuminata, obtusiuscula, basi sæpius obliqua, supra nigricantia, sparse puberula, subtus albide-discoloria, in costa centrali, ut petiolus 3·5 mm. longus, puberula, aliter glabra; stipulæ suborbiculares, subglabræ. *Flores* solitarii, pseudo-axillares, in pedicellis ± 3 mm. longis. *Calycis* lobi lanceolati, subacuti, subglabri, 2–2·5 mm. longi.

Camps I to III, 500 to 2500 ft.

Distinct in the leaf-shape and colour, and in the very short pedicels.

Argostemma lingua-felis, Wernham, sp. nov.

Herba simplex, ad ca. 15 cm. alta; caulis gracilis, glaber, foliosus. *Folia* lanceolata, acuminata, obtusa, quemque ad nodum duo, inæqualia, alterum ca. 14 × 4·5 mm., alterum 6 × 2 mm., basi sæpius rotundata, utrinque pilis densis minute crystallinis rigidulis articulatis asperula, venis secundariis omnino occlusis, petiolo tenui sparse piloso 2–2·5 mm. longo; stipulæ latæ, rotundatæ, reflexæ, persistentes, dorso qua folia indutæ, intus glabræ. *Flores* solitarii, terminales, pedicello 5–6 mm. longo ut ovarium hemisphæricum 4 mm. longum densissime albido-hirsuto suffulti; bracteolæ 2, minutæ, oblongæ, obtusæ, infra pedicelli medium affixæ. *Calycis* lobi triangulari-ovati, subacuti, dorso pilosi, intus glabri, 3 mm. longi.

Camp VI *a*, 3100 ft.

Recognisable by the peculiar indumentum of the leaves, and the broad stipules. Of the pair at a node, one is about half the size of the other.

Argostemma gesnerella, Wernham, sp. nov.

Herba parva, debilis, glabra. *Folia* pauca, membranacea, valde inæqualia, majora lanceolata, longe acuminata, basi rotundata, ca. 5·5 × 1·5 cm., venis secundariis utrinque ca. 6–8, petiolo 3–4 mm. longo; minora linearia v. anguste lanceolata, ca. 8 × 2 mm.; stipulæ a basi triangulari longe setaceo-acuminatæ, 3 mm. longæ. *Flores* glabri, in cymas subcapitatas ca. 1 cm. diam. dispositi, pedunculo flaccido complanato 1–1·8 cm. longo; bracteæ lineari-lanceolatæ, 8–10 mm. longæ, apice subacutæ, sæpe dentibus 1–2 marginalibus. *Calyx* 5-dentatus. *Corollæ* tubus cylindricus, ca. 4 mm. longus, lobis oblongis obtusis 3 mm. longis.

Camps III to VIII, 2500 to 000 ft.

Recognisable by the complete glabrousness, minute flowers, and toothed bracts.

ARGOSTEMMA NUBICOLUM, Wernham, sp. nov.

Herba inter minimas, vix 8 cm. alta; caulis debilis, subglaber. *Folia* subæqualia, tenuia, elliptica v. ovata, sæpius vix acuminata, 8–17 × 4–6 mm., obtusa, supra minutissime asperulo-papillosa, subtus subglabra, venis secundariis manifestis utrinque ca. 5, petiolo tenui ad 4 mm. longo; stipulæ a basi triangulari in apicem setaceo-caudatum angustatæ. *Flores* parvi in capitula pauciflora pedunculo 5 mm. longo suffulta dispositi; bracteæ lineares obtusæ, 5 mm. longæ. *Calyx* minutus. *Corollæ* extus glabræ; tubus infra per 3·5 mm. cylindricus, superne per 1·5 mm. subito infundibulariter ampliatus; lobi 5 oblongi, obtusi, 3 mm. longi. *Antheræ* vix conniventes.

Camps X, XI, 6700 to 8300 ft.

Distinct in its small size, equal leaves, and the peculiar shape of the corolla.

ARGOSTEMMA WOLLASTONII, Wernham, sp. nov.

Herba parva, ± 10 cm. alta; caulis debilis, sparsiuscule pilosus. *Folia* quemque ad nodum subæqualia lanceolata, acuminata, subacuta, 35 × 6·5 mm., basi in petiolum ad 6 mm. longum angustata, utrinque in venis puberula, subtus minute asperulo-papillosa; stipulæ ovatæ, 2 mm. longæ. *Flores* solitarii, in pedicellis insuper puberulis desuper glabris 2·5 cm. longis; bracteolæ 4, 11 mm. supra pedicelli basin verticillatim affixæ, 2 lineares 4 mm. longæ, 2 obovatæ obtusissimæ 2 × 1·5 mm. *Calycis* brevis lobi lati. *Corollæ* lobi oblongi, acuti, 7–8 mm. longi. *Antheræ* arcte in conum 4–5 mm. exsertum conniventes, pubescentes, rostratæ.

Camps I to III, 500 to 2500 ft.

Allied to *A. nanum*, Val., differing in the subequal leaves, larger corolla, and pubescent, beaked anthers.

OPHIORRHIZA BREVIPES, Wernham, sp. nov.

Caulis debilis, sinuatus, sparse ramosus; ramuli sparsissime (novelli densius) minute puberuli. *Folia* tenuiter membranacea, lanceolata vel ovata, attenuata, acuminata, basi angustata, quemque ad nodum 2 valde inæqualia, majora 6–12 × 1·5–5 cm., minora 1·5–4·5 × 5–15 mm., supra glabra, subtus albido-discoloria et in venis secundariis et intervenientibus necnon secundum centralem minute pulverulenta, venis subtus conspicuis secundariis utrinque ca. 12; stipulæ breves, subulato-setaceæ. *Inflorescentia* parva, circiter 7-flora; pedunculus vix 5 mm. longus, cum ramis minute ferrugineo-pubescens; bracteæ obsoletæ. *Calycis* dentes breves, lineari-triangulares, minuti. *Corollæ* extus glabratæ tubus cylindricus, 3 mm. longus, ore dense cano-barbatus; lobi intus puberuli, lanceolati, vix 1 mm. longi. *Ovarium* compresso-sulcatum.

Camps I to III, 400 to 2538 ft.

Comparable with the Philippine *O. venosum*, Merr., but distinguished especially by the very short peduncle and small inflorescence.

OPHIORRHIZA CARSTENSENSIS, Wernham, sp. nov.

Herba glabra, caulis debilis. *Folia* plerumque oblonga, longe acuminata, apice obtusa, quemque ad nodum 2 inæqualia, majora ca. 8–13·5 × 3–4·5 cm., basi in petiolum ± 1 cm. longum attenuata, minora 1–3 × 8–12 mm., omnia glabra; stipulæ in setas 2–3 divisæ, 5–9 mm. vel ultra longæ. *Flores* albi, inter minimos, in cymis parvis; pedunculi 2–3·5 cm. longi, tenues; bracteæ plurimæ, conspicuæ, oblongo-lineares, ad ca. 1 × 1·5 mm. *Calyx* cum ovario costato compresso subglaber; lobi minuti, ovati. *Corollæ* extus minute glanduloso-pubescentis tubus 5 mm. longus, basin versus ventricosus, insuper sub lobos breviter ampliatus; lobi ad 3 mm. longi, lanceolati, acuto-acuminati, intus minute puberuli.

Camps I to III, VI *a* and VI *b*, 500 to 3900 ft.

Distinguishable by the very thin, unequal leaves, the long setaceous stipules, the conspicuous persistent bracts, and the relatively long very acute corolla-lobes.

OPHIORRHIZA RHODODICTYON, Wernham, sp. nov.

Caulis debilis, tenuis, novellus rufo-pulverulentus. *Folia* lanceolata, acuminata, basi in petiolum tenuem ad 2·5 cm. longum attenuata, utrinque glabra, ca. 8–12 × 2–4 cm.; venæ secundariæ subtus prominulæ, utrinque ca. 8–12, reticulatione interveniente valde conspicua dilute rosea; stipulæ persistentes, filamentose productæ, 5–8 mm. longæ. *Inflorescentia* pubescens, parva, multiflora; pedunculus obsoletus vel vix ad 5 mm. longus; bracteæ obsoletæ. *Calycis* dentes lineari-triangulares, minuti. *Corollæ* extus minutissime glanduloso-pubescentis tubus 3·3 mm. longus, basin versus ventricosus, insuper parum ampliatus; lobi angusti, revoluti, ca. 1·2 mm. longi. *Ovarium* compressum, sulcatum, rufo-pubescens.

Canoe Camp, 150 ft.

Characterised by the rose-pink reticulation and the extremely small flowers, "pale yellow, base white."

OPHIORRHIZA WOLLASTONII, Wernham, sp. nov.

Herba ± 2 dm. alta; caulis erectus, basi sublignosus, insuper ramosus; ramuli novelli cum foliorum præsertim novellorum pagina inferiore sæpe vivide sulphureo- vel ferrugineo-pulverulenti. *Folia* sæpius elliptico-lanceolata, utrinque angustata, ad ca. 7 × 2·7 cm., supra glabrata; petiolus brevissimus, ad ± 1·5 cm. longus; stipulæ brevissimæ, integræ, subsetaceæ. *Inflorescentia* multiflora; ramuli cum pedicellis ovariisque sulcatis minute pubescentes; pedunculi ± 2·5 cm. longi, tenues. *Calycis* lobi obtuse triangulares, brevissimi. *Corollæ* extus glabræ, tubus subcylindricus, 3·5–4 mm. longus, intus in ore flavo-barbatus; lobi lanceolati, 3 mm. longi. *Antheræ* exsertæ, 1·3 mm. longæ; filamenta 3·2 mm. longa.

Camps I to III, 400 to 2538 ft.

Allied, apparently, to the Malayan *O. trichocarpa*, Blume, but differing in habit, calyx and ovary.

OPHIORRHIZA UTAKWENSIS, Wernham, sp. nov.

Caulis sparse et irregulariter minute hirtellus. *Folia* elliptica, ad ca. 6·5×2·8 cm., leniter acuminata, apice obtusa, supra glabra, subtus discoloria, in venis obscure minute squamoso-pubescentia, venis secundariis utrinque ca. 8; stipulæ 2–3-setosæ, parvæ. *Inflorescentia* minute rufo-pubescens, ± 12-flora, ramis tandem divaricatis; bracteæ setaceæ, inconspicuæ; pedunculus ± 1 cm. longus; pedicelli ad 4 mm. longi. *Calyx* cum ovario compresso sulcato vix 1·5 mm. longus; dentes minuti, lanceolati. *Corollæ* extus glabræ tubus cylindricus, 3 mm. longus; lobi patentes, tubi dimidium subæquantes.

Camps VII to VIII, 3482 to 4989 ft.

Allied to *O. rhododictyon*, Wernham, but distinct in the different venation and the smaller leaves.

HEDYOTIS AURICULARIA, Linn. Sp. Pl. 101.

Camp VI *c*, 5500 ft.

Distrib. Tropics of Asia and Australia.

HEDYOTIS RADICANS, Miq. Fl. Ind.-Bat. ii. 181.

Camps III to VI *a*, 2500 to 3100 ft.

Distrib. Philippine Islands.

HEDYOTIS KLOSSII, Wernham, sp. nov.

Suffrutex; caulis angulatus, dense pilis articulatis pubescens, basin versus lignosus, rhizomatosus. *Folia* lanceolata, utrinque acuminata, subacuta, crassiuscula, 7–11·5 cm. longa, 1·5–3 cm. lata, supra, glabra, subtus sparse, in vena centrali densius, squamuloso-pubescentia, venis secundariis utrinque 6 impressis; petiolus supra canaliculatus, glaber, subtus, ut costa mediana vero densius indutus, ad 1 cm. longus. *Stipulæ* triangulares, insuper in setas 6 vel plures pilosas divisæ, vix 1 cm. longæ. *Pedunculi* graciles, ad 7 cm. longi, quadrangulares, sparse lineatim pubescentes, ex axillis oppositis orti. *Inflorescentia* umbellata, laxa, ampla, 3–4 cm. lata; bracteæ lanceolatæ, acuminatæ, 1–1·5 cm. longæ. *Pedicelli* gracillimi, ad 5 mm. vel nonnunquam ultra longi, glabri. *Calycis* lobi lanceolati, acuti, glabri, 3·5 mm. longi. *Corolla* ca. 5 mm. longa, glabra. *Ovarium* campanulatum, 1·5 mm. longum, glabrum. *Capsula* glabra, ellipsoidea, ca. 4 mm. longa, 3 mm. lata; calycis lobi in fructu persistentes, ad 4·5 mm. longi.

Camps I to III, up to 2500 ft.

Related to *Oldenlandia Kochii*, Val., but differing in the shape and texture of the leaves, and the faint venation. The leaves exceed the inflorescence in the present species; the peduncles are shorter; and the narrow lanceolate calyx-lobes much exceed both ovary and capsule.

ANOTIS PAPUANA, Laut. in Nachtr. Fl. Deutsch. Schutzg. Südsee, 391.

Camps VI *b*, VIII, IX, 3900 to 5500 ft.

Distrib. North-east New Guinea.

MUSSÆNDA CYLINDROCARPA, Burck, in Ann. Buitenz. iii. (1883), 118, t. 17.

Canoe Camp, 150 ft.

Distrib. Endemic in New Guinea.

MUSSÆNDA BODENII, Wernham, sp. nov.

Frutex ramulis sparse ferrugineo-pubescentibus. *Folia* papyracea, elliptica, ca. 6·5 × 3 cm., utrinque angustata, supra sparsim minute pilosa, subtus in venis puberula, venis secundariis utrinque ca. 6; petiolus sparsiuscule ferrugineo-pubescens, tenuis, ad 7 mm. longus; stipulæ triangulares, ad ca. 5 mm. longæ, apice setaceo-bifidæ. *Inflorescentia* trichotome corymbosa; pedunculi primarii arcuati, 5–6 cm. longi, insuper complanati. *Calycis* lobi lineari-lanceolati, sparse appresse pilosi, 5 mm. longi, unus nonnunquam in laminam subglabram amplam breviter stipitatam dilatatus. *Corollæ* tubus gracillimus, 5·5–6 cm. longus, extus insuper sericeus, aliter sparse minute pubescens; lobi ovati, ca. 6 × 4·5 mm. longi, acutissime apiculati. *Ovarium* subcampanulatum, appresse pilosum.

Camp I, 700 ft.

Allied to *M. macrantha*, Val., but the corolla has a longer tube and shorter lobes, and the leaves are less acuminate.

MUSSÆNDA OREADUM, Wernham, sp. nov.

Frutex ramulis dense breviter fusco-tomentosis. *Folia* crassiuscula, elliptica vel oblonga, ad ca. 7·5 × 3·4 cm., basi rotundata, apice subacuta, supra in costa media densiuscule aliter sparsiuscule pubescentia, rugosula, subtus præsertim in venis conspicuis asperulo-pubescentia, venis secundariis utrinque ca. 8; petiolus tomentosus, ca. 6 mm. longus; stipulæ triangulares, apice bifidæ, 5 mm. longæ. *Inflorescentia* pauciflora, corymbosa, foliosa; pedunculi inferiores 2·7 cm. longi. *Calycis* lobi decidui, subulati, 5–6 mm. longi, nisi unus in laminam foliaceam ovatam utrinque pubescentem 3·5 cm. longam 2·2 cm. latam stipite 5 mm. longo suffultam dilatatus. *Corollæ* extus pubescentis tubus ca. 3·7 cm. longus, insuper parum ampliatus; lobi ovales, ca. 8 mm. longi. *Ovarium* subcylindricum, pubescens, ca. 1 cm. longum.

Camps X and XI, 6700 to 8300 ft.

Distinct in the rugose leaves, the thick pubescence, and the small foliaceous calyx-lobes with short stalks.

MUSSÆNDA RIDLEYANA, Wernham, sp. nov.

Frutex subglaber; ramuli striati, lenticellosi. *Folia* chartacea, elliptica, utrinque angustata, 6–9 × 2–3·5 cm., hinc inde præsertim subtus in venis pilis conspersis strigilloso-puberula, venis secundariis utrinque 6–8, supra leviter impressis subtus prominulis; petiolus tenuis, supra minute puberulus, subtus glabratus, 8 mm. longus; stipulæ subglabræ, rigidæ, lanceolatæ, subulato-acuminatæ, integræ, ad 7 mm. longæ. *Inflorescentia* trichotome corymbosa, multiflora. *Calycis* lobi lanceolati, fortiter involuti, rigidi, ca. 3 mm. longi, unus nonnunquam in laminam

obovatam in venis sparse puberulam apice obtusam ca. 5 cm. longam 3·5 cm. latam stipite sparse strigilloso ca. 1 cm. longo suffultam ampliatus. *Corolla* gracilis, extus infra minute sparse pubescens, insuper dense et appresse pubescens; tubus intus ab ore per 7 cm. pilis adscendentibus ochraceis densissimis onustus, ceterum glaberrimus, 4–4·5 cm. longus; lobi angusti, oblongi, subacuti, 8 cm. longi, extus sparse appresse minute pubescentes intus dense glanduloso-pubescentes. *Antheræ* 7 mm. longæ. *Ovarium* anguste turbinatum, sparse appresse pubescens vel subglabrum.

Camp VI *a*, 3100 ft.

Related to *M. longituba*, Val.; very distinct, however, in the character of the lobes of both calyx and corolla.

I have named this species in honour of Mr. H. N. Ridley, who has on many occasions unsparingly placed his wide knowledge of the Malayan flora at my disposal.

MUSSÆNDA UTAKWÆ, Wernham, sp. nov.

Frutex ramulis dense ferrugineo-pubescentibus tarde glabrescentibus. *Folia* papyracea, anguste elliptica vel oblanceolata, ad ca. 8·5 × 2·8 cm., utrinque angustata, apice obtusa, utrinque sparse vel in venis densius pubescentia, venis secundariis utrinque 8–10; petiolus tenuis, pubescens, ca. 1 cm. longus; stipulæ triangulares, 4–5 mm. longæ, dense sericeæ, apice bifidæ. *Inflorescentia* pauciflora, dense pubescens. *Calycis* limbus valde deciduus; lobi lanceolati, 2 mm. longi, unus nonnunquam in laminam ovatam utrinque molliter pubescentem ad ca. 5 cm. longam 3·7 cm. latam basi in stipitem 5 mm. longum angustatam ampliatus. *Corollæ* gracillimæ tubus ca. 4 cm. longus, extus lobos versus densissime sericeus, desuper sparse pubescens; lobi lati, ovati, subacuti, 3·5 × 3 mm. *Ovarium* cylindricum, 4 mm. longum, dense pubescens.

Camp I, 700 ft.

Distinct in the very short deciduous calyx-teeth, and the very slender corolla with short, broad, blunt lobes.

LUCINÆA KLOSSII, Wernham, sp. nov.

Frutex glaberrimus; ramuli graciles, virgati, mox cortice albido striato induti. *Folia* papyracea, elliptica, 11–14 × 3·5–5 cm., acuminata, apice obtusa, basi acuta, in petiolum ad ca. 1–1·5 cm. longum desinentia, venis cum reticulatione interveniente utrinque prominulis; stipulæ membranaceæ, ovatæ, setaceo-mucronatæ, in vaginam brevem cohærentes. *Capitula* parva, 9–10-flora, sub anthesi vix 1 cm. diam., pedunculis ca. 6 mm. longis. *Calyx* glaber, subinteger. *Corolla* extus subglaber, e calyce 3–4 mm. exserta; lobi lanceolati, patentes, 3–3·5 mm. longi, obtusi.

Camp VI *b*, 3900 ft.

Allied to *L. novoguineensis*, Val., but distinct in the form of the stipules and exsertion of the corolla.

UROPHYLLUM WOLLASTONII, Wernham, sp. nov.

Frutex ramulis appresse pilosis levibus. *Folia* elliptica vel oblonga, acuminata, basi acuta, 12–14 × 5–5·5 cm., supra glabra, subtus in venis obscure appresse pubescentia, venis secundariis subtus prominentibus utrinque 7–8; petiolus ad ca. 1·3 cm. longus, validiusculus; stipulæ lanceolatæ, subacutæ, 1·3 cm. × 3·5 mm. *Flores* ♀ in pedunculis brevissimis crassiusculis umbellatim dispositi; pedicelli tenues, 2–3 mm. longi, ut pedunculi sericei. *Calyx* cum ovario sub-globoso 2 mm. longus, brevissime late et acute 5-dentatus, ore 2 mm. in diam., sparse sericeus. *Corollæ* lobi, nisi extus in apice sparse sericei, utrinque glabri, oblongi, 1·5 mm. longi, apice incurvatim incrassati; tubus brevissimus, intus in ore dense barbatus. *Ovarium* 5-loculare.

Camp I, 500 ft.

The nearest ally seems to be *U. Wichmanni*, Val., distinguished by the shape and size of the leaves.

GARDENIA CARSTENSENSIS, Wernham, sp. nov.

Frutex glaberrimus; ramuli complanati. *Folia* papyracea, opposita, obovato-lanceolata, ad ca. 26 × 9·5 cm., brevissime acuminata, acuta, basi in petiolum ± 1 cm. angustata, venis secundariis utrinque 16–19, utrinque prominulis; stipulæ lanceolatæ, ± 1 cm. longæ. *Inflorescentia* 3–4-flora; pedunculus lignosus, validus, brevis. *Flores* 5-meri; pedicelli ad ca. 5 mm. longi. *Calycis* glabri limbus teres infundibuliformis, 5–6 mm. longus, subirregulariter in lobos latos obtusissimos breviter oblongos breves fissus. *Corollæ* extus appresse griseo-puberulæ tubus latiusculus, supra medium inflatus, ad 6–7 mm. latus, ore constrictus, totus ca. 11 mm. longus; lobi oblongo-lanceolati, acuti, acuminati, tubum subæquantes, sinuati. *Ovarium* turbinatum, imperfecte 2-loculare, calycis limbo brevius.

Camp III, 2500 ft.

Distinguished by the small few-flowered inflorescence borne on the mature woody stem-parts, and the stout short corolla-tube.

GARDENIA KLOSSII, Wernham, sp. nov,

Frutex glaber, ramuli validi, complanati. *Folia* ampla, obovata, ca. 30 × 12 cm., firme chartacea, basi in petiolum nunc brevissimum, nunc ad 2 cm. longum angustata, venis secundariis utrinque ca. 12; stipulæ oblongæ, 2·5 cm. longæ, acuminatæ, acutæ, caducissimæ. *Flores* glaberrimi, albi, 5-meri, in cymas laxas paucifloras basi lignosas dispositi; pedicelli graciles, ad 2–3 cm. elongati. *Calyx* turbinatus, limbo integerrimo 6–7 mm. longo. *Corollæ* tubus subcylindricus, 1·5 cm. longus; lobi oblongi, acuti, 2–7 cm. longi, 8 mm. lati. *Ovarium* ca. 4 mm. longum.

Canoe Camp, 150 ft.

Related apparently to *Randia Versteegii*, Val.; distinguished by different relative sizes of corolla-tube and lobes.

TIMONIUS SERICEUS, K. Schum. Fl. Kais.-Wilhelmsl. 131.

Camp VI *b*, 3900 ft.

Distrib. Malaya and Australia.

TIMONIUS CARSTENSENSIS, Wernham, sp. nov.

Ramuli novelli ipsi glaberrimi. *Folia* firme coriacea, 7–10 × 2·5–4 cm., elliptica, utrinque angustata, subacuta, basi in petiolum glabrum brevem leniter decurrentia, utrinque nisi subtus hic inde pilis obscuris conspersa glaberrima, supra nitida, venis præter centralem obscuris vel omnino occlusis; stipulæ caducissimæ, in ramulorum apicibus, calyptram ad 3·5–4 cm. longam acutam acuminatam formantes. *Flores* ♀ solitarii in pedicellis validis glabris 1–1·5 cm. longis dispositi. *Calyx* breviter 6-dentatus. *Corollæ* extus glabræ tubus 5–6 mm. longus, 3–3·5 mm. latus; lobi 6, lanceolati, apice cucullati. *Ovarium* multiloculare, glabrum, cum calyce et pedicello in siccitate nigricans; stylus brevis, insuper 6-fidus. *Flores* ♂ in cymas abbreviatas secundifloras dispositi. *Calyx* subinteger. *Corollæ* tubus insuper ampliatus, 1 cm. longus, raro fere ad 2·5 mm. latus, basin versus gracilis; lobi 5, ovati, demum reflexi, ad 4 × 3 mm. *Stamina* 5.

Camps X, XI, XII, 6700 to 11,000 ft.

Distinguished by the smallish, thick, leathery leaves, the stout pedicels and ovaries of the ♀ flowers and the styles, which are only half the length of the corolla-tube.

TIMONIUS FILIPES, Wernham, sp. nov.

Ramuli gracillimi, glabri. *Folia* elliptica vel oblonga, 6–12 × 2–3·5 cm., firme chartacea, basi sæpius acuta, longe caudato-acuminata, apice subacuta, supra glaberrima, subtus in venis secundariis prominulis utrinque 1–2 obscure barbellata, aliter glabra; petiolus fere glaber, ad ca. 5 mm. longus; stipulæ anguste lanceolatæ, longe acuminatæ, ad 1·5 cm. ultra longæ. *Flores* ♀ solitarii, cum pedicellis sursum curvatis gracillimis angulatis insuper latioribus glabris 2·5–3 cm. longis articulati; bracteæ 2, ovatæ, dorso carinatæ, acutæ, ovarium subamplectentes, minutæ. *Calyx* brevissime et late 4-lobatus, minutus. *Corollæ* minute puberulæ tubus ca. 9 mm. longus; lobi patentes, ovati, obtusissimi, 2–3 mm. longi. *Stylus* corollam subæquans, 4-fidus. *Ovarium* incano-sericeum, 8–10-loculare.

Camps III, VI *b*, 2500 and 3900 ft.

Distinguished by the slender branchlets, the long acumina of the rather small leaves, and the long, slender, flattened, upwardly-curved peduncles.

Var. ACUMINATISSIMA, Wernham, var. nov.

Planta gracilior. *Folia* minora, pro rata longius acuminata.

Camp VI *a*, 3100 ft.

TIMONIUS HEPTAMERUS, Wernham, sp. nov.

Frutex præter flores subglaber; ramuli novelli obscure et minute puberuli valde complanati, internodiis brevibus. *Folia* coriacea, elliptico-oblonga, ad ca. 9 ×

2·7 cm., basi acuta, acuminata, apice acutissima, supra glaberrima, subtus sub lente uniformiter sparse pilosa, venis præter centralem supra impressam subtus (præsertim desuper) prominentem occlusis; petiolus ±12 mm. longus, minute papillosus; stipulæ caducissimæ, calyptram in ramulorum apicibus caudato-acuminatam extus leviter sericeo-pubescentem formantes, ad 4 cm. longæ. *Flores* ♀ solitarii, axillares; pedicelli validi, subglabri, 6–7 mm. longi. *Calyx* brevis, integerrimus. *Corollæ* tubus extus sericeus, latiusculus, 6–7 mm. longus, 3·5 mm. latus; lobi 7, lanceolati, apiculati, 2·75 mm. longi. *Antheræ* effetæ 7. *Ovarium* in loculos rotundatos perplurimos mox divisum; styli rami 7.

Camp III, 2500 ft.

Allied to *T. avenis*, Val.; distinct in the shorter pedicels, and the stout, short, heptamerous corolla.

TIMONIUS KLOSSII, Wernham, sp. nov.

Ramuli compressi, sulcati, dense flavo-sericei. *Folia* sæpius obovato-lanceolata, basi acuta, breviter acuminata, apice subacuta, 10–14 × 4·5–5·5 cm., chartacea, supra glabra, subtus in venis aureo-sericea, venis supra prominulis subtus prominentibus, secundariis utrinque ca. 12; petiolus subteres, dense sericeus, vix ad 2 cm. longus; stipulæ lanceolatæ, acuminatæ, acutæ, ca. 1·3 cm. longæ, marginem versus sericeæ, aliter glabræ. *Flores* ♂ 4-meri in cymas parvas laxiusculas paucifloras dispositi; pedunculus 8–10 mm. longus, valde complanatus, sæpius decurvatus, sericeus. *Calycis* lobi oblongo-lineares, obtusi, demum reflexi, ad 8 mm. longi. *Stamina* 5; antheræ ±6 mm. longæ. *Flores* ♀ . . .

Camps XI to XII, 8300 to 11,000 ft.

Notable for the number of stamens and the character of the calyx-lobes.

TIMONIUS VACCINIOIDES, Wernham, sp. nov.

Frutex ramulis rufo-pubescentibus. *Folia* late ovata vel suborbicularia, coriacea, glaberrima, 7–11 × 5–10 mm., ad margines revoluta, venis præter centralem omnino occlusis; stipulæ lanceolatæ, acuminatæ, acutæ, 4 mm. longæ, glabræ, deciduæ. *Flores* inter minimos, extus sparse strigillosi, ♂ vix 7 mm. longi, ♀ aliquanto longiores. *Calycis* limbus tubularis, brevis, obscure 4-dentatus. *Corollæ* tubus subcylindricus; limbi lobi lati, obtusissimi, vix 1 mm. longi. *Ovarium* 9–10-loculare.

Camp VI *c*, 5500 ft.

Strikingly distinct in its small, thick, roundish leaves.

TIMONIUS WOLLASTONII, Wernham, sp. nov.

Frutex ramulis minutissime pubescentibus. *Folia* opposita, crasse coriacea, ovata, ad 2 cm. × 1·5 cm., obtusa, utrinque glaberrima, ad margines revoluta, venis præter centralem omnino occlusis; petiolus vix 5 mm. longus; stipulæ caducissimæ, calyptram lanceolatam acuminatam vix 9 mm. longam formantes. *Flores* inter minimos, vix 5 mm. longi, glabri. *Calyx* breviter tubularis, truncatus, vix

1 mm. altus. *Ovarium* velut *fructus* nitens, sulcatum, 10-loculare. *Drupa* ca. 4 mm. × 3 mm.

Camp VI *c*, 5500 ft.

Allied to *T. vaccinioides* just described, but the branches are less conspicuously and differently hairy, and the leaves considerably larger and opposite.

IXORA ARGENTEA, Wernham, sp. nov.

Frutex præter inflorescentiam glaberrimus; rami validi complanati. *Folia* magna, firme chartacea, utrinque fusco-argentea, subnitentia, oblonga, ad 45×11·5 cm., basi acuta, obliqua, venis secundariis utrinque ca. 17, velut reticulum interveniens supra prominulis subtus magis prominentibus; petiolus validus, supra canaliculatus, vix 1 cm. longus; stipulæ plus minus coalitæ, acutissimæ, insuper fere subulatæ, a basi triangulari ca. 4 mm. longæ. *Inflorescentia* umbellata, 5-brachiata, minute puberula; pedunculi gracillimi, striati, 11–12 cm. longi, basi bracteis in vaginam 4–5 mm. longam cohærentibus onusti; bracteæ cæteræ minimæ, lanceolatæ; umbellæ radii primarii fere 3 cm. longi; pedicelli 6–7 mm. longi, tenues; bracteolæ 2, minutæ. *Calycis* lobi 4, lati, rotundati. *Corollæ* tubus extus minute pubescens, gracillimus, 1·5 cm. vel ultra longus; lobi extus glaberrimi, oblongi, apice rotundati, ca. 8 mm. longi. *Ovarium* cum calyce ca. 2 mm. longum, alte 4-sulcatum.

Camp I, 500 ft.

Related to *I. Versteegii*, Val., but the leaves are broader and the peduncles erect and much longer. The dark silvery grey of the leaves is distinctive.

PSYCHOTRIA BECCARII, K. Schum. Fl. Kais. Wilhelmsl. 135.

Camps I to III, 500 to 2500 ft.

Distrib. North-east New Guinea.

PSYCHOTRIA CARSTENSENSIS, Wernham, sp. nov.

Rami insuper complanato-angulati, desuper teretes, striato-læves, fistulosi. *Folia* obovata, ca. 8 × 4·7 cm., basi cuneata, brevissime late et subacute acuminata, utrinque glabra, supra nitentia; petiolus glaber, 9 mm. longus, venis utrinque prominulis, secundariis utrinque ca. 7–9, debilioribus intercalatis; stipulæ caducissimæ, glabræ, lanceolatæ, acuminatæ, membranaceæ, ca. 2·3 cm. × 8 mm. *Inflorescentia* glabra, ramis primariis 3, centrali longissimo 3 cm. longo, deinde trichotoma, tota ca. 8 cm. longa, 10 cm. lata, permultiflora. *Flores* sessiles, sæpius in capitula 5-flora congesti, pedunculis 5–7 mm. longis. *Calyx* minutus, obtuse triangulariter dentatus, cum ovario glaberrimus. *Corollæ* extus glabræ tubus gracilis, 8–9 mm. longus, intus infra fauces cano-pilosus; lobi 5, anguste oblongi, reflexi, obtusissimi, 2·5 mm. longi. *Antheræ* exsertæ.

Camps VIII to IX, 4900 to 5500 ft.

Distinct in the ovate, rather small leaves with close venation, the very dense inflorescence with spreading lower branches, and the slender glabrous flowers.

PSYCHOTRIA OCHNIDIOPHORA, Wernham, sp. nov.

Rami validi, valde complanati, densissime hirto-pubescentes, demum glabrescentes. *Folia* ampla, ovata, 15–25 × 6–10 cm., supra glabra, subtus in venis densiuscule aliter sparsissime ferrugineo-pubescentia, brevissime et late acuminata, apice obtusa, basi in petiolum validum sæpius dense hirtellum 2–4·5 cm. longum latiuscule angustata, venis supra hebetatis ac impressis subtus prominentibus, secundariis utrinque ca. 15–18; stipulæ amplæ, ovatæ, ca. 2·5 × 1·7 cm., apice in lacinias duas late lanceolatas vix 9 mm. longas bifidæ, ± hirtæ, in margine hirto-ciliatæ. *Inflorescentiæ* paniculatæ, cymosæ; pedunculus fere 10 cm. longus, cum ramis ferrugineo-pubescens; rami primarii 4, circa 4 cm. longi ad basin bracteis 4 lineari-setaceis ca. 1·5 cm. longis onusti; *bracteæ* cæteræ setaceæ; panicula (fructifera) pedunculo excluso ca. 11 cm. lata, 8 cm. longa. *Calycis* lobi subsetacei, 3–4 mm. longi, rufo-hirsuti. *Fructus* pyriformis, dilute viridis, sparse hirtus, costatus, basi in pedicellum rufo-hirtellum ad 5 mm. longum attenuatus, calyce persistente coronatus.

Canoe Camp, 150 ft.

Allied apparently to *P. Wichmanni*, Val., which it resembles in the calyx-lobes and indumentum generally; distinct in its larger and differently-shaped leaves.

A specimen collected at Camp I at 700 feet, with elliptic leaves and a small, lax, few-flowered inflorescence, may be a variety of this species; but the material is inadequate for certain determination.

PSYCHOTRIA RUBIGINOSISSIMA, Wernham, sp. nov.

Frutex siccitate omnino valde rufescens; ramuli, petioli, et inflorescentia dense pilis breviusculis hirtulis rufis induti. *Folia* coriacea, late ovata, ad 4·5 × 3·3 cm., breviter latiuscule acuminata, obtusa, basi rotundata vel truncata vel subcordata, supra nitentia, in venis impressis sparse aliter sparsissime rufo-puberula, infra in venis valde prominentibus secundariis utrinque 3 dense aliter sparse rufo-pubescentia; petiolus validus, 3–4 mm. longus. *Flores* inter minores, sæpius sessiles, in thyrsum subcorymbosum ad ca. 7 cm. longum 9 cm. latum collecti, pedunculi primarii 3–4, 3–4 cm. longi; bracteæ minutæ, setaceæ. *Calyx* minutus, triangulariter 5-dentatus, cum ovario hirtus. *Corolla* anguste infundibularis, extus sparsiuscule hirta, intus glaberrima, rubescens; tubus 3·5–4 mm. longus; lobi lanceolati, 2 mm. longi, apice inflexo-incrassati.

Camp III, 2500 ft.

Remarkable for the red hairy appearance of the whole plant, and for the rather small broad leaves with few veins.

PSYCHOTRIA UTAKWENSIS, Wernham, sp. nov.

Ramuli validi, glabri, valde complanati. *Folia* ampla, obovata, 15–25 cm. longa, 6–11 cm. lata, basi in petiolum validum subglabrum 1–2 cm. longum leniter angustata, apice brevissime et late acuminata, supra glabra, subtus in venis

pulverulenta, aliter minute papillosa vel subglabra, venis subtus valde prominentibus, secundariis utrinque ca. 12–14; stipulæ lanceolatæ, obtusæ, 9 × 4 mm., glabræ, caducissimæ. *Inflorescentia* tribrachiata, laxa, pauciflora, sessilis, ca. 6 mm. lata, 3 cm. longa; pedunculi 3, primarii e ligni veteris nodis orti, ca. 1·5–2 cm. longi, minute ferrugineo-pulverulenti; pedicelli ad 6 mm. longi. *Calyx* brevissimus, integer, cum ovario glaber. *Corollæ* pro genere magnæ extus glabræ tubus intus supra stamina densissime cano-barbatus, subcylindricus, ±1 cm. longus, ±5 mm. latus; lobi anguste oblongi, obtusi, suberecti, 6–7 mm. longi. *Antheræ* 6 mm. longæ.

Canoe Camp, 150 ft.

Allied to *P. cauliflora*, Laut. & K. Schum., but the leaves are broader and puberulous below, and the entire stipules are rapidly caducous.

Psychotria Wollastonii, Wernham, sp. nov.

Rami graciles, minutissime pulverulento-asperuli. *Folia* subcoriacea, ovata, ca. 3·8 × 1·8 cm., acuminata, obtusa, basi rotundata, utrinque glaberrima, venis sæpius subtus prominentibus, secundariis utrinque 3–5; petiolus ad 4–5 mm. longus. *Flores* sessiles, in thyrsum laxissimum 11 cm. longum basi 15 cm. latum dispositi, extus omnino glaberrimi; rami gracillimi, sinuati, divaricati, obscure minute pulverulenti; bracteæ minimæ, subsetaceæ. *Calyx* cum ovario nitens, 2 mm. longus; lobi 5, oblongo-lanceolati, obtusi, 1 mm. longi. *Corolla* late campanulata, tota 3 mm. longa, ore 2·5 mm. lata; lobi 5, triangulares, obtusi, ±1 mm. longi; tubus intus in faucibus sparse barbatus. *Antherarum* apices vix exserti.

Camp VI *b*, 3900 ft.

Allied apparently to *P. andaiensis*, Val.; it differs in its smaller leaves and flowers.

Geophila reniformis, D. Don, Prod. Fl. Nep. 136.

Canoe Camp, 150 ft.

Distrib. Throughout the tropics of the world.

Cephælis Utakwæ, Wernham, sp. nov.

Herba præter inflorescentiam glaberrimus, ramulis validis. *Folia* firme chartacea, obovata, 17–20 × 8–9 cm., basi in petiolum breviusculum 1·5–2·5 cm. validum angustata, subito breviter cuspidato-acuminata, apice subacuta, margine revoluta; venis secundariis supra prominulis, subtus prominentibus, utrinque 16–20; stipulæ caducissimæ. *Capitulum* sessile, ca. 4·5 cm. diam.; bracteæ exteriores paucæ, latæ, acuminatæ, glabræ nisi insuper ciliatæ; interiores inter flores dispositæ perplurimæ, subspathulatæ, imæ angustiores, 1·5–2 cm. longæ, insuper irregulariter setaceo-fimbriatæ, præter fimbrias conspicue pilosas glabræ. *Pedicelli* brevissimi vel obsoleti. *Calyx* sub-hemisphæricus; limbus ultra medium in lacinias 5 lineari-lanceolatas 2–5 mm. longas in margine longe et dense articulato-pilosas divisus,

aliter ut ovarium glaberrimus. *Corolla* extus glaberrima; tubus 11 mm. longus, insuper parum ampliatus; lobi lanceolati, vix 5 mm. longi, apice cucullati.

Canoe Camp and Camp I, 150 to 700 ft.

Related to *Uragoga bicoloriceps*, Laut. & K. Schum., differing obviously in the size of the leaves and petioles, the deciduous stipules and the bracts.

LASIANTHUS MULTIBRACTEATUS, Wernham, sp. nov.

Ramuli novelli præsertim pube ferrugineo-hirtello deciduo induti, valde complanati. *Folia* plerumque oblanceolata, 10–14 × 2·5–3·5 cm., utrinque angustata, subacuta, petiolo ±1 cm. longo, utrinque glabra nisi subtus in costa centrali sæpe sparsiuscule rufo-pubescentia, venis secundariis angulo recto cum costa centrali insertis leniter insuper arcuatis ca. 12; stipulæ deciduæ, setaceo-lineares, dense rufo-pubescentes, 1·5 cm. longæ. *Flores* 4-meri, in axillis 2–3 subsessiles, bracteis foliaceis pluribus cincti, exterioribus ellipticis acuminatis acutis basi cuneatis brevissime petiolatis ad ca. 1 cm. longis, 4·5 mm. latis. *Calycis* lobi lineari-lanceolatæ, 2·5 mm. longi, extus pilosi. *Corollæ* 4–5 mm. longæ; tubus extus glaber; limbi 3–5 mm. diam., lobi, puberuli, lanceolati, patentes. *Ovarium* biloculare.

Camp VI *b*, 3900 ft.

Distinct in the conspicuous bracts and bilocular ovary. Flowers "pale pink white."

LASIANTHUS PAPUANUS, Wernham, sp. nov.

Frutex ramulis virgatis dense appresse flavo-pubescentibus. *Folia* oblongo-lanceolata, 7–11 cm. longa, 2·3–2·8 cm. lata, acuminata, acuta, basi subrotundata, supra in costa centrali, subtus in venis appresse pilosa, aliter glabra, petiolo dense flavo-sericeo brevissimo (4–5 mm. longo); stipulæ subulatæ, ut ramuli indutæ, ±8 mm. longæ, deciduæ. *Flores* in axillis solitarii v. bini, 5-meri; bracteæ inconspicuæ. *Calycis* lobi lanceolati, subacuti, 2·5 mm. longi, intus glabri, extus pilosi. *Corollæ* tubus cylindricus, extus præter lobos sparse hirtellos glaberrimus, 4·8 mm. longus; lobi 5, oblongi, subobtusi, intus dense barbati, 1·5 mm. longi.

Camp I, 500 ft.

Allied to *L. appressus*, Hook. fil., but the branchlets are more slender, the leaves longer and narrower, and the venation different.

AMARACARPUS PAPUANUS, Val. in Nov. Guin. viii. 501 (1911).

Camp I, 700 ft.; Camp VI *b*, 3900 ft.

Distrib. South-west New Guinea.

AMARACARPUS ANOMALUS, Wernham, sp. nov.

Suffrutex subrepens; ramuli densiuscule subhirtello-pubescentes, novelli densissime ferruginei. *Folia* crassiuscule pergamacea, cuneata, vix acuminata, obtusa, ad. ca.

9 × 6·5 mm., supra glabra, subtus minute asperulo-papillosa, in costa media basin versus velut in petiolo brevissimo basi tumido pilis articulatis hirtella, venis secundariis utrinque 2–3; stipulæ lanceolatæ, membranaceæ, dorso sparse irregulariter pilosæ, integræ, subobtusæ, apice setaceæ. *Flores* solitarii albi, ramulos brevissimos terminantes, sessiles vel pedicellis pro rata validis ca. 1·5 mm. longis suffulti; bracteolæ 2 stipularum forma, ovarium arcte amplectentes. *Calyx* pedicello subæquilongus, glaber, 4-dentatus, dentibus triangularibus obtusis. *Corollæ* glaberrimæ tubus insuper parum ampliatus, 6 mm. longus; lobi 4, oblongi, obtusi, patentes, 3·4 mm. longi. *Stamina* 4, antheræ exsertæ.

Camps IX to X, 5500 to 6700 ft.

Resembles *A. cuneifolius*, Val., but the corolla is differently shaped, and the stipules are entire; the latter character is anomalous for this genus.

Coprosma Wollastonii, Wernham, sp. nov.

Herba parva, tamen dura; ramuli glaberrimi, striato-sulcati, siccitate nigricantes. *Folia* crassiuscula, elliptico-lanceolata, ca. 3·5 × 1·2 cm., apicem versus angustata, basi in petiolum manifestum vix vero 5 mm. longum attenuata, acuta, supra aspera, subtus præter costam centralem hic inde pilis brevibus rigidis hirtellam glabra, subnitentia, margine serrato-aspero-hirtella, venis secundariis obscuris, utrinque ca. 4; stipulæ breviter oblongæ, albidæ, 6–7 longæ, in vaginam insuper serrato-fimbriatam cohærentes. *Flores* ♀ et ♂ subsessiles, glabri, 1–2-ni in axillis. *Calyx* minutus, irregulariter subobtuse 5-dentatus. *Corollæ* infundibularis tubus 4 mm. longus; lobi anguste et acuminate triangulares, ca. 4·5 mm. longi. *Antheræ* longe exsertæ, versatiles, 5 mm. longæ. *Styli* rami 1·5 cm. exserti. *Drupa* calyce persistente coronata.

Camps XI to XII, 8300 to 11,000 ft.

Distinct in its appearance, like that of one of the tougher, broad-leaved *Hedyotis*. The whole plant blackens in drying, except the conspicuous yellowish stipules.

Galium papuanum, Wernham, sp. nov.

Caulis sat debilis, pilis albidis patentibus sparse irregulariterque pubescens. *Folia* 3–4-natim verticillata, elliptica, breviter acuminata, apice obtusa, sessilia, ± 8 mm. × 4 mm., triplinervia, in nervis patule cano-hirtella. *Flores* in cymas dichotomas laxas paucifloras vel subcorymbosas dispositi. *Fructus* dense canis pilis uncinulatis indutus. *Corolla* vix ultra dimidium in lobos 4 obtusissimos ovatos divisa.

Camps IX to X, 5500 to 6700 ft.

Allied to *G. rotundifolium*, Linn., but the relatively much narrower leaves and the long corolla-tube are distinctive.

COMPOSITÆ.

(By S. Moore.)

VERNONIACEÆ

Vernonia cinerea, Less. in Linnæa, iv. (1829) 291.

Camps III to IX, 2500 to 5500 ft.

Distrib. Widely distributed in Africa, India, the Malay Archipelago, Australia, &c.

Vernonia (§ Strobocalyx) Klossii, S. Moore, sp. nov.

Frutex verisimiliter ramosus. *Caulis* subteres, longitrorsum prominenter striatus, mox glaber. *Ramuli* sat tenues, breviter fulvo-pubescentes, puberulæ. *Folia* petiolata, oblongo-elliptica, apicem versus sæpe attenuata, apice ipso obtusa vel obtuse acuta, basi longiuscule extenuata, margine integra vel pauci-denticulata, membranacea, supra vix omnino glabra, subtus præsertim in nervis puberula, vulgo 6–8 × 2–3 cm. *Capitula* submediocria, 4–5-flosculosa, e ramulorum axillis paniculatim oriunda et ita paniculam magnam sublaxam foliis intermixtam usque ad 30 cm. longam et fere 15 cm. latam efficientia. *Pedunculi proprii* involucris breviores, 1–4 mm. longi, fulvo-pubescentes; capitula pansa 1 cm. longa. *Involucrum* cylindricum, cito campanulatum, 16·5 × 3 mm.; phylla 4–5 serialia, exteriora caduca, longiora 3–6 mm. longa, ovata, oblonga (intima anguste ovato-oblonga), omnia obtusa, coriacea, margine ciliolata, dilute straminea, apice brunnea. *Corollæ* exsertæ, 6 mm. longæ. *Achænia* cylindrica, turbinata, 10-costata, per basin rectam callosam receptaculo inserta, glabra, 2·5 mm. longa. *Pappus* 2-seriatus; setæ exteriores abbreviatæ, aliquanto compressæ, 2·5 mm. longæ, interiores longiores necnon angustiores, 7 mm. longæ, apicem versus paullulum dilatatæ, dilute stramineæ nisi dilutissime rubiginosæ.

Camps VI to VI *b*, 3100 to 3900 ft.

This was also collected by H. O. Forbes in British New Guinea in the Sogeri District at 2500 ft. (59 in Herb. Mus. Brit.).

Leaves drying green, fairly copiously provided with pellucid glands; petioles about 1 cm. long, shallowly channelled above, tawny puberulous; upper leaves diminishing in size, the highest passing into the bracts of the panicle. Partial panicles about as long as the leaves, *i. e.* 5–8 cm. in length (the younger ones, however, shorter), their peduncles about 2·5 cm. long. Corollas white, with a narrow tube suddenly dilated at the throat, glabrous; tube 0·3 mm. wide, the throat nearly 1 mm. wide; lobes oblong, obtuse, 2·5 mm. long. Style-arms 2·5 mm. long.

I have seen neither *V. polyantha*, Warb., nor *V. papuana*, Lauterb., but they both have capitula evidently different from those of the present plant. In general appearance *V. Klossii* is more like *V. secundifolia*, Boj., from Madagascar, than any other species known to me.

COMPOSITÆ: Eupatorieæ.

Adenostemma viscosum, Forst. Char. Gen. 90.

Camps VI *b* and VII to IX, 3900 to 5500 ft.

Distrib. Chiefly in the warmer parts of the Old World from Africa to Australia and Polynesia.

Mikania scandens, Willd. Sp. Pl. iii. 1743.

Camps VII to VIII, 3600 to 4900 ft.

Distrib. Tropics and subtropics of both hemispheres.

COMPOSITÆ: Asteroideæ.

Dicrocephala latifolia, DC. Prod. v. 372.

Camps III to IX, 2500 to 5500 ft.

Distrib. A weed in Africa, Asia and the Archipelago.

Myriactis Wollastonii, S. Moore, sp. nov.

Herba humilis, scapigera. *Folia* rosulata, sessilia, spathulato-oblonga, obtusa, margine sparsim calloso-dentata, membranaceo-coriacea, utrinque pubescentia, basin versus glabra, plerumque 2–2·5 × 4–6 mm. *Scapus* erectus, folia sæpius excedens, bracteis foliis similibus nisi minoribus onustus, monocephalus. *Capitula* mediocria, circa 54-flosculosa, circa 8 mm. diam. *Involucrum* hemisphæricum, 3-seriale; phylla oblonga vel anguste ovato-oblonga, obtusa, dorso piloso-puberula, circa 5 mm. longa. *Radii flosculi* 36, 2-seriales; ligulæ exsertæ, anguste obovato-oblongæ, bifidæ vel bidentatæ, 3·5 mm. longæ. *Disci flosculi* 18; horum corollæ fere medium usque 4-lobæ; lobi ovati, obtusi. *Stamina* 4; antheræ oblongæ, breviter apiculatæ, basi truncatæ, circa 0·75 mm. longæ. *Styli* rami compressi, appendicibus conoideis præditi. *Achænia* compressa, ambitu anguste oblongo-obovata, breviter rostrata, superne scabrida, 2·5–3 mm. longa.

Camps XIII to XIV, 10,500 to 12,500 ft.

A small scapigerous herb, not more than 6 inches high, and often less. *Rootstock* elongated, only 1–2 mm. thick, but at the neck swollen to 5–6 mm., giving off several long, wiry, unbranched rootlets. *Leaves* about 10 to a rosette, though sometimes fewer, usually with 2–3 pairs of rather prominent teeth on either side towards the apex, otherwise entire. *Scape* up to 4 cm. in length, but often considerably shorter; its bracts ± 15 × 5 mm., like the scape itself pubescent. *Leaves of involucre* when dry usually dark at the apex and edges. *Ligules* apparently white. *Corollas of disc* narrowly campanulate, the tube 1·5 mm., the lobes 0·5 mm. long. *Anthers* easily separating, the connective produced into a small apiculus. *Style* relatively stout; arms about 0·75 mm. long. *Achenes* dark brown; beak stoutish, truncate, straight or slightly curved, about 0·5 mm. in length.

A pretty little plant, quite distinct from the two other known Papuan species.

Olearia (§ Dicellotriche) exilis, S. Moore, sp. nov.

Frutex verisimiliter. *Ramuli* crebre foliosi, deinde glabrescentes, juventute ut

inflorescentia necnon foliorum pagina inferior tomento fulvido arcte induti. *Folia* plerumque opposita vel subopposita, breviter petiolata, anguste ovato-oblonga, obtusa vel obtusissima, integra, coriacea, supra cito glabra nitidaque, pleraque 4–7 longa, 1·3–2·8 cm. lata. *Capitula* mediocria, in corymbos laxiusculos pedunculatos oligocephalos raribracteatos ex axillis superioribus ortos folia sæpius superantes disposita. *Pedunculi proprii* capitulis plane longiores, sæpissime 1·5–3·5 cm. longi. *Involucrum* campanulatum, 4-seriale, 6 mm. longum; phylla extima abbreviata, lanceolato-subulata, 3 mm. longa, intermedia oblongo-lanceolata, 4 mm. longa, intima oblonga, 5 mm. longa, omnia obtusiuscula, dorso sparsim pubescentia margineque præsertim sub apice ciliata, brunnea, nervo lato mediano fusco percursa. *Flosculi* 16–17; radii ligulæ 9–10, oblongæ, tridentatæ, 4–5 mm. longæ, ex involucro plane eminentes; disci corollæ 7, 4–5 mm. longæ, inferne anguste cylindricæ, superne campanulatæ; lobi oblongi, glabri. *Antheræ* basi caudiculis minimis tenuibus præditæ, 2 mm. longæ. *Achænia* adhuc cruda compressa, paucistriata, glabra, 2 mm. longa. *Pappi* setæ paucæ, inter se fere æquilongæ, scabridæ, sordide albæ, 4·5 mm. longæ.

Camps XII to XIII, 10,500 to 11,000 ft.

Leaves rigidly coriaceous; nerves on the upper face impressed, on the lower prominent, including the reticulum; tomentum a short close felt of centrally fixed hairs; petioles stout, tomentose, 5 mm. more or less in length. *Corymbs* up to 10 × 7 cm., often about 7–9 × 5–6 cm., heads as many as 15 per corymb, but usually fewer. *Bracts* very few, linear or oblong, up to 1 cm. in length, though often only 3·4 mm. long, the uppermost passing into the involucral leaves. *Heads* expanded about 10 × 13 mm. *Corollas* of disk-florets with the narrow tubular part (2 mm. long) microscopically puberulous; the campanulate part split nearly $\frac{2}{3}$ of its length into 5 oblong lobes. *Style* protruding beyond the anthers, nearly 4 mm. long, its arms rather more than 1 mm.

Olearia monticola, Bail., hitherto the only broad-leaved species described from New Guinea, differs, so far as can be made out by the description alone, from the present plant in the following particulars:—Its leaves are nearly twice as broad, the corymbs are dense, the involucres are much broader (hence its heads would appear to be larger), and the leaves linear, the corollas of the disk-florets have hairy lobes and the achenes are hairy.

ERIGERON KLOSSII, S. Moore, sp. nov.

Fruticulosa verisimiliter circiter spithamea. *Caulis* rigidus, erectus, simplex vel sparsim ramosus, ut ramuli dense foliosus, cito glaber. *Folia* imbricata, sessilia, linearia, obtusiuscula, margine revoluta, coriacea, glabra, 1 cm. longa, 1 mm. lata. *Capitula* mediocria, 4–5-flosculosa, longe pedunculata, caulem ramulosve solitatim coronantia sed revera subterminalia, circa 12 × 15 mm. *Pedunculi* folia sæpissime longe excedentes, bracteis anguste linearibus ± 5 mm. longis hac atque illac onusti, griseo-pubescentes, plerumque 6–10 cm. longi. *Involucrum* hemisphæricum: phylla 4–5-serialia, intus gradatim longiora, lineari-lanceolata, acuminata, microscopice puberula, extima 4–5 mm. longa, intermedia 7–8·5 mm., intima 10 mm. longa.

Radii flosculi 28; ligulæ lineares, involucrum facile superantes, 9×1·5 mm. *Disci flosculi* 17, steriles; horum corollæ anguste infundibulares, 7 mm. longæ; lobi triangulari-lanceolati, obtusiusculi, tubo multo breviores. *Antheræ* basi obtusæ, 2 mm. longæ. *Achænia* oblonga, basi apiceque breviter angustata, compressa, sparsim appresse setulosa vel fere globosa, 3 mm. longa. *Pappus* biserialis; setæ scabridæ, dilutissime stramineæ, inter se subæquales, circa 6 mm. longæ.

Camps XI to XIII, 8300 to 10,500 ft.

Stem and *branches* slender and woody, the former covered with the persistent bases of fallen leaves. *Leaves* with the upper surface wrinkled, midrib very prominent on the lower side. *Style* exserted, the appendages to their arms oblong, obtuse, arm and appendage together nearly 2 mm. long. *Ripe achenes* produced by the ligulate florets alone, pale in colour.

This has the habit of the Australian *Olearia ciliata*, F. Muell., for which, indeed, it might be almost mistaken on a first view. It is, however, a true *Erigeron*.

ERIGERON PILOSO-VILLOSUM, S. Moore, sp. nov.

Caulis reptans, lignosus, nudus radicansque, ramos dense foliosos breves ascendentes hac atque illac emittens. *Folia* imbricata, sessilia, lineari-oblonga, obtusa vel obtusissima, tenuiter coriacea, utrobique piloso-villosa, summum 15×2 mm., sæpius circa 10×1·5 mm. *Capitula* hemisphærica, solitaria, terminalia, breviter pedunculata, circa 23-flosculosa, 10×12 mm. *Pedunculi* 4–12 mm. longi. *Involucrum* 3-seriale, 8 mm. longum; phylla lineari-lanceolata, obtusiuscula, exteriora herbacea, piloso-villosa, intima glabra margineque membranacea. *Radii flosculi* 16; ligulæ abbreviatæ, lineares nisi filiformes, ex pappo haud eminentes, 1 mm. longæ. *Disci flosculi* 7, verisimiliter steriles; corollæ inferne tubulosæ, superne anguste campanulatæ, 5 mm. longæ; limbus 5-lobus. *Antheræ* basi obtusæ, 1 mm. longæ. *Styli* rami appendicibus oblongis obtusis onusti, 1·25 mm. longi. *Achænia* radii florum linearia, 3 mm. longa, disci florum lineari-oblonga, 4·5 mm. longa; omnia maxime compressa necnon sparsim breviterque pilosa. *Pappus* corollas breviter excedens, 6–6·5 mm. longus; setæ scabriusculæ, dilute stramineæ.

Camp XIV, 12,500 ft.

Branches ascending to 6 inches or more, densely leafy, frequently themselves branching in turn. Its foliage affords an easy means of identifying this species.

VITTADINIA ALINÆ, F. Muell. in Trans. Roy. Soc. Vict. i. part 2 (1889) 11.

Camps XIII to XIV, 10,500 to 12,500 ft.

Distrib. Endemic in New Guinea.

VITTADINIA MACRA, F. Muell. l. c. 11.

Camps XIII to XIV, 10,500 to 12,500 ft.

Distrib. Endemic in New Guinea.

VITTADINIA DISTICHA, S. Moore, sp. nov.

Planta humilis. *Caulis* lignosus, juxta solum ramos complures densissime foliosos emittens. *Folia* sessilia, bifariatim arcte imbricata, lineari-teretia, obtusa, margine maxime involuta, ut rami tela argyrea deinde fusca induta, 8–10 mm. longa, in sicco 1 mm. lata. *Capitula* mediocria, ramos solitatim terminantia, breviter pedunculata, 21-flosculosa, circa 6 × 7 mm. *Involucrum* hemisphæricum, 3–4-seriale; phylla lineari-lanceolata, obtusa vel obtuse acuta, extus argyræa, exteriora 3·5–5 mm., cætera 6–6·5 mm. longa. *Radii flosculi* 15, horum ligulæ abbreviatæ, ex pappo haud vel vix eminentes, lineares vel lineari-oblongæ, apice integræ, 1·5 mm. longæ. *Disci flosculi* 6, fertiles; corollæ 5-fidæ, inferne anguste cylindricæ, superne campanulatæ, 4·5 mm. longæ. *Antheræ* inclusæ, angustissimæ, 1 mm. longæ; loculi basi obtusi. *Stylus* inclusus, hujus rami exserti, appendicibus subulatis onusti, 1 mm. longi. *Achænia* compressa, oblongo-turbinata, dense sericea, 2·5–3·5 mm. longa. *Pappus* 5 mm. longus; setæ 2-seriales, paucæ exteriores plus minus abbreviatæ, scabridæ, fulvæ.

Camps XIII to XIV, 10,500 to 12,500 ft.

Whole plant often only 6 cm. high or less, though sometimes reaching 10 cm. *Stems* branching from near the ground, woody, ascending or apparently sometimes procumbent, thickly covered with the remains of dead foliage. *Peduncles* at the flowering stage very short, never exceeding 3 mm. in length, but elongating afterwards to 10 mm., like the leaves silky. *Anthers* with short lanceolate, acuminate appendages.

A very distinct species easily recognised by its narrow close-set, distichous silky leaves.

COMPOSITÆ: INULOIDEÆ.

BLUMEA BALFOURII, Hemsl. in Kew Bull. 1894, 213, var. PAPUANA, S. Moore, var. nov.

A typo discrepat ramis angulatis fere alatis, foliis subtus puberulis, superioribus longioribus basin versus longiuscule extenuatis, inflorescentia sparsiore.

Canoe Camp, 500 ft.

Distrib. Type a native of the Solomon Islands.

BLUMEA PAPUANA, S. Moore, sp. nov.

Rami foliosi, teretes, puberuli. *Folia* breviter petiolata, ovata vel ovato-oblonga, obtusa vel obtuse acuta, basi obtusa, margine glanduloso-denticulata, coriacea, pagina inferiore præsertim in nervis puberula, usque ad 7 × 3·5 cm., sæpissime ± 4 × 2 cm. *Capitula* pro rata mediocria (circa 1 × 1 cm.), multiflosculosa, in paniculam bracteatam satis densam foliis sæpissime longiorem (± 10 cm. longam) disposita. *Bracteæ* vetustiores foliis diminutis similes, 2–3 × 1·2–1·5 cm., juniores minores, lanceolatæ; bracteæ inflorescentiarum partialium parvulæ, lineares, ut axes sparsim pubescentes. *Involucrum* hemisphæricum; phylla circa 6-serialia, interiora gradatim longiora, lanceolata, acuminata, apice piloso-ciliato exempto glabra, exteriora fusca, 2–3 mm. longa, interiora dilutius brunnea, 4–8 mm. longa. *Receptaculum* nudum. *Flosculi* hermaphroditi 6, vix exserti. *Antheræ* ex corolla

plane eminentes, 2 mm. longæ. *Achænia* adhuc cruda cylindrica, setulifera, 1–1·25 mm. longa. *Pappi* setæ læves, sordide albæ, 5 mm. longæ.

Camps IX to XI and XIII, 5500 to 8300 and 10,500 ft.

Branches leafy throughout or without leaves for a short space not more than 4 cm. below the inflorescence. *Leaves* drying darkish upon the upper face and palely shining; petioles up to 1 cm. in length, though mostly only half as long or even less, puberulous. *Corolla* of female florets 4·5 mm. long, of hermaphrodite 6·5 mm. long, rather more than 1 mm. wide at the throat, its 5 deltoid lobes less than 1 mm. in length. *Style-arms* compressed, obtuse, in length slightly exceeding 1 mm.

This looks much like *B. chinensis*, DC., from which, however, it can readily be distinguished by the denser inflorescence, the involucres, and the glabrous receptacles.

Anaphalis Mariæ, F. Muell. in Trans. Roy. Soc. Vict. i. part 2 (1889) 8.

Camps XI to XIII, 8300 to 10,500 ft.

Distrib. Endemic in New Guinea.

Anaphalis monocephala, S. Moore, sp. nov.

Caules reptantes, rigidi, tomentosi, deinde glabri, ramulos patentes crebro foliosos tomentosos frequenter emittentes. *Folia* inferiora ramulorum approximata, lineari-spathulata, obtusa, 7 mm. longa, superiora magis sparsa, necnon longiora, 1 cm. longa, omnia utrinque tomento albo arcto vel araneoso involuta. *Capitula* ad normam generis magna, apicem ramulorum solitatim terminantia, subsessilia, multiflosculosa, circa 13 × 15 mm. *Involucrum* hemisphæricum, circa 7-seriale; phylla oblonga, extima basi araneoso-tomentosa, cætera glabra, appendice radiante lineari-oblonga acuta vel obtuse acuta dilute brunnea onusta, extima 7–8 × 1·2 mm., cætera 10 × 1 mm. *Flosculi* feminei circa 98, steriles. *Flosculi* hermaphroditi circa 67, fertiles (anne omnes?); corollæ tubulosæ, superne brevissime amplificatæ, vix 3 mm. longæ, tubo lobis multo breviore. *Antheræ* inclusæ, basi brevissime caudiculatæ, 1 mm. longæ. *Styli rami* abbreviati. *Achænia* oblonga, glabra, 1 mm. longa. *Pappi setæ* basi brevissime connatæ, scabridæ, albæ, 3 mm. longæ.

Camps XIII to XIV, 10,500 to 12,500 ft.

A rampant herb with many very patent straggling wiry branches. *Receptacle* concave. *Style* of the fertile florets shortly exserted, its somewhat clubbed arms 0·2 mm. in length.

Though its heads are solitary, *A. nubigena*, DC., var. *papuana*, Lauterb. can scarcely be identical with this, seeing that it is described as unbranched, with sub-linear white involucral leaves. If it should prove to be identical, the plant above described could not, in my judgment, be regarded as conspecific with *A. nubigena*. Its characteristics among Papuan species may be said to be the small leaves hairy on both sides, the large solitary heads, and the relatively narrow, pale bronze involucres.

Gnaphalium luteo-album, Linn. Sp. Pl. 851.

Camps VIII to X, 4900 to 6700 ft.

Distrib. A cosmopolitan weed.

COMPOSITÆ: Anthemideæ.

Abrotanella papuana, S. Moore, sp. nov.

Herba pumila, scaposa, vix 2 cm. alta. *Folia* pauca, imbricata, linearia, obtusa, integra, ob margines involutos plus minus subteretia, petiolis latis vaginantibus piloso-ciliatis 5 mm. longis fulta, crassiusculo-coriacea, glabra, plerumque 12–15 mm. longa, 1 mm. lata. *Scapus* erectus, foliis paullulum brevior, sparsim bracteatus, 1-cephalus, circa 10 mm. altus. *Capitula* pansa 4 × 5 mm. *Involucrum* campanulatum, 2-seriale, 3 mm. longum; phylla 12, inter se paullo inæquimagna, oblonga vel ovato-oblonga, dorso carinulata, crassiuscula, glabra, 1–1·25 mm. lata. *Flosculi* breviter exserti; exteriores circa 15, ♀, corollis tubulosis 4-fidis lobis tubo plane brevioribus 2 mm. longis, interiores perpauci (speciminis a nobis scrutati 2), ☿, corollis 2–2·5 mm. longis, quam eæ cæterorum paullo latioribus limboque brevi irregulariter 4-lobo præditis. *Antheræ* inclusæ, oblongæ, basi subevanide auriculatæ, 1 mm. longæ. *Styli rami* truncati, 0·3 mm. longi. *Achænia* omnia verisimiliter fertilia, oblongo-ovoidea, compressa, apice rotundato-truncata, facie utravis costis 3 onusta omnino epapposa, adhuc cruda 1·5 mm. longa, superne fere 1 mm. lata.

Camps XIII to XIV, 10,500 to 12,500 ft.

Scape stoutish, bearing about two bracts like the foliage leaves, only smaller.

From a distributional point of view, this is a plant of great interest. Exclusive of the species just described, the genus *Abrotanella* comprises 13 species, of which 7 are endemic in New Zealand and the neighbouring islands; the mountain summits of Tasmania and Victoria claim three more, while two are Fijian and one is a native of the Falkland Islands*. It will thus be seen that, *Abrotanella* being an Antarctic genus, the occurrence of a species so near the Equator as New Guinea is a fact of considerable importance.

COMPOSITÆ: Senecionideæ.

Erecthites novoguineensis, S. Moore, sp. nov.

Herba verisimiliter perennis. *Caulis* ascendens, ramosus, foliosus, cito glaber. *Folia* sat elongata, oblanceolata, acuminata, apice ipso obtusa, basin versus in petiolum brevem latumque gradatim extenuata, margine dentata, membranacea, glabra. *Capitula* parva, 10-flosculosa, in paniculam terminalem densam pleistocephalam bracteatam puberulam foliis circiter æquilongam 16 cm. longam 11 cm. latam digesta. *Bracteæ* parvulæ, filiformes, 1 mm. longæ, pedunculis propriis breviores. *Involucrum* anguste campanulatum, 6 mm. longum; phylla 8, anguste lineari-lanceolata, acuta, dorso carinulata, margine membranacea, phyllis additis interdum paucis parvulis bracteis similibus calyculum efficientibus. *Flosculi exteriores* 8–10, ♀; horum corolla filiformis, stylo brevior, 5 mm. longa. *Flosculi interiores* 2, ☿; corolla tubulosa, 5·5 mm. longa, lobis 5 tubo multo brevioribus. *Styli rami*

* *A. rhynchocarpa*, Balf. fil., a native of Rodriguez, does not belong to the genus. See Journ. Bot. 1914, p. 146.

papillosi, apice obtusissimi, 1 mm. longi. *Achænia* subcylindrica, basi callosa, 10-costata, brunnea, glabra, 2 mm. longa. *Pappi setæ* inter se subæquilongæ, scabriusculæ, albæ, 4·5 mm. longæ.

Camps X to XI, 6700 to 8300 ft.

Apparently a branching perennial herb or subshrub, the ultimate branches much compressed. *Leaves* drying greyish green, margins of the leaf in its proximal half entire; petioles broad, at most 1 cm. in length, but usually less. *Corolla of female florets* with the limb very short and sometimes developed mostly upon one side, so as to form an incipient ligule.

This is a plant of some significance when the Australasian predominance of the genus is kept in view. Its closest affinity is with the Australian *E. prenanthoides*, DC., from which it is in many respects different.

COMPOSITÆ: CICHORIACEÆ.

CREPIS PAPUANA, S. Moore, sp. nov.

Herba scapigera. *Folia* pauca, subrosulata, oblanceolato-oblonga, obtusa vel obtusissima, apice ipso sæpius apiculata, basi in petiolum longum satis latum extenuata, margine sparsim ciliato-denticulata, membranacea, glabra, modice 4 × 1 cm., summum 7 × 2 cm. *Scapus* ascendens, folia longe excedens, superne semel ramosus, raribracteatus, sparsim puberulus, deinde glaber, altitudine 10 cm. paullo excedens. *Capitula* pro rata parva, 7 × 4 mm., corymbum oligo- usque 10-cephalum densiusculum bracteatum 1 cm. longum 1·5 cm. latum constituentia, circiter 12-flosculosa. *Bracteæ* subulatæ, pedunculis propriis breviores. *Involucri* phylla externa parvula, 3-seriata, ovato-oblonga, obtusa vel obtuse acuta, 2 mm. longa; phylla interna 8, anguste lineari-oblonga, obtusa, angustissime marginata, glabra, 5 mm. longa. *Receptaculum* planum. *Antheræ* basi caudato-acuminatæ, 1 mm. longæ. *Achænia* compressa, lineari-oblonga, basi truncata callosaque, 5 mm. longa, faciebus 10-costatis, apice in rostrum gracile fere æquilongum desinentia, dilute brunnea, glabra. *Pappus* achænio paullo brevior; setæ scabriusculæ, albæ, 4 mm. longæ.

Camps XI to XII, 8300 to 11,000 ft.

Stem very short, emitting numerous rootlets below. *Leaves* about half a dozen to each plant, drying grey-green; petiole passing gradually into the blade, and, like it, sparsely ciliate-denticulate, up to 4 cm. in length, though usually shorter.

This is a very distinct plant, easily recognised by the long-stalked leaves and rather dense corymbs borne on long scapes. The corymbs are much like those of some small-headed *Hieracium*.

CREPIS JAPONICA, Benth. Fl. Hongkong, 194.

Camps VIII to X, 4900 to 6700 ft.

Distrib. From Mauritius, India, and China to Australia and Polynesia.

Lactuca lævigata, DC. Prod. vii. 140.
Camps III to VIII, 2500 to 4900 ft.
Distrib. Indian Archipelago.

GOODENIACEÆ.
(By H. F. Wernham.)

Scævola Wollastonii, Wernham, sp. nov.

Ramuli teretes, striati, sparse et obscure pubescentes, virgati. *Folia* chartacea, opposita, elliptica, ca. 8 cm. × 3·5 cm., acuminata, utrinque subacuta, utrinque nisi hic inde præsertim in costa media obscure puberula vel hirtella, glabra, margine interdum hic inde irregulariter acute denticulata; in axillis barbellata; venæ prominulæ, secundariæ utrinque ca. 6–8; petiolus brevissimus. *Flores* in cymis laxiusculis subappresse pubescentibus; pedunculi 1–2 axillares, 1·5–2 cm. longi; bracteæ parvæ, lanceolatæ, basi barbellatæ. *Calycis* dentes breves, lanceolati, obtusi, mox reflexi. *Corollæ* extra sparsiuscule puberulæ tubus ad 8–9 mm. longus, tandem ad basin fissus, intus ad basin dense flavo-hirsutus; lobi lineari-oblongi, obtusi, conspicue membranaceo-alati, tubum fere æquantes. *Capsula* oblanceolata, 7–8 mm. longa, glabrescens.

Camps I to III, VI *b*, III to VIII, 500 to 4900 ft.

Allied to *Sc. novoguineensis*, K. Schum., but differing in the almost glabrous leaves with subacute base, the shorter peduncle, and the conspicuous wings to the corolla-lobes. In one specimen, collected at Camp VI *b*, the leaves are more markedly acuminate than in the rest; it may be a variety.

CAMPANULACEÆ.
(By S. Moore.)

Lobelia affinis, Wall. Cat. n. 1300. (*Pratia*? *torricellensis*, Lauterb. in K. Schum. & Lauterb. Flor. deutsch. Schutzgeb. Südsee, Nachtr. 402.)
Camps VI *a–c*, VII to IX, XI, XII, 3100 to 11,000 ft.
Distrib. India and S. China, Malay Archipelago.

Pratia papuana, S. Moore, sp. nov.

Planta decumbens, glabra. *Caulis* tenuis, foliosus, hac atque illac radicem simplicem vel subsimplicem procreans. *Folia* parvula, subsessilia, suborbicularia, 4–6 mm. diam., basi breviter cordata, margine paucidentata, firme membranacea. *Pedunculi* filiformes, folia longe excedentes, sub flore 1 cm., sub fructu 2 cm. longi. *Calycis* lobi lanceolato-oblongi, obtusiusculi, 2·25 mm. longi, corolla fere 3-plo breviores. *Corolla* 7 mm. longa; lobi postici lineari-oblongi, acutiusculi; labium anticum circa 6 mm. longum, paullo ultra medium divisum, lobis oblongo-ovatis acutiusculis. *Stamina* subinclusa; filamentorum tubus ima basi corollæ adnatus, 4 mm. longus; antheræ 1·25 mm. longæ, 2 anticæ breviter aristulatæ.

Ovarium ovoideo-turbinatum, 2 mm. longum, sursum 1·5 mm. latum; stylus inclusus. *Bacca* globosa, puberula, circa 5 mm. diam.

Camps VIII to IX and XI to XIII, 4900 to 10,500 ft.

Leaves drying green; nerves fairly well seen, especially on the upper side; petioles not more than 1 mm. long.

This much resembles the New Zealand *P. angulata*, Hook. f., from which it can be distinguished without difficulty by the subsessile leaves with cordate base.

PRATIA WOLLASTONII, S. Moore, sp. nov.

Caulis gracilis, decumbens radicansque, glaber. *Folia* parvula, circa 5·5 × 4·5 mm., subsessilia, late ovata, apice basique obtusissima, margine crenulata sparsimque ciliata, aliter glabra, membranacea. *Pedunculi* graciles, foliis multo longiores, usque ad 25 mm., sæpius 12 mm. longi. *Calycis* lobi lineari-lanceolati, obtusi, margine ciliolati, 2·2–2·5 mm. longi. *Corolla* calycem plane superans, 7·5 mm. longa; lobi postici spathulato-oblongi, obtusi; labium anticum 4·5 mm. longum, in triente inferiore indivisum, lobis oblongis obtusis. *Stamina* subinclusa; filamentorum tubus basi corollæ adnatus, 4 mm. longus; antheræ 1·75 mm. longæ, anticæ breviter aristulatæ. *Ovarium* anguste turbinatum, interdum vix omnino glabrum; stylus ex cono antherarum breviter emergens.

Camps VIII to IX, 4900 to 5500 ft.

Leaves drying greyish green, nervation obscure; petioles 1 mm. long, deeply channelled above. Berry not seen.

This can be at once distinguished from *P. papuana* by means of its leaves and the long ovary of its flowers.

VACCINIACEÆ.

(By H. F. WERNHAM.)

DIMORPHANTHERA, F. Muell. ex Wing, South Sc. Rec. ii. (Feb. 1886) in obs.

§ 1. PTERIDOSIPHON, Wernham, sect. nov. Calycis tubus etsi breviter, tamen conspicue *Pentapterygii* modo pentapterus.

Mueller's genus *Dimorphanthera* has been regarded as a section, merely, of *Agapetes*. It differs from the latter, however, in habit, leaf-venation, toothing of the calyx, and length and structure of the anthers. These differences together seem to justify amply the maintenance of Mueller's genus. The two species described below agree with *Dimorphanthera* in all the characters just named, differing only in the structure of the calyx-tube; this resembles closely that of the allied Himalayan genus *Pentapterygium*. I propose, therefore, to include them in a separate section of *Dimorphanthera*, as defined above.

DIMORPHANTHERA (§ PTERIDOSIPHON) MACLEANIÆFOLIA, Wernham, sp. nov.

Planta præter flores glabra. *Folia* coriacea, ampla, elliptica vel ovata, breviter acuminata, basi rotundata, obliqua, 22–28 cm. × 9–13 cm., sæpius 5-plinervia; petiolus validus, ca. 1 cm. longus. *Calycis* 5 mm. longi tubus subpentapterus, cum

pedicello ca. 1 cm. longo minute pubescens; limbus minute dentatus, subinteger. *Corolla* extus uti calyx puberula, intus glabra, tubularis; tubus ± 2·3 cm. longus; lobi subtriangulares, ± 2 mm. longi, erecti. *Stamina* 10, uniseriata, sparse puberula; filamenta leviter in tubum 4 mm. longum corollæ basi leviter adhærentem cohærentia; antheræ vix 9 mm. longæ, insuper poris obliquis 3–4 mm. longis dehiscentes. *Ovarium* 5-loculare; stylus filamentosus, ± 2·5 cm. longus.

Camps III to VI, 2100 to 2500 ft.

Resembling *D. Forbesii*, F. Muell., this species is at once distinguished by the winged calyx.

Dimorphanthera (§ Pteridosiphon) umbellata, Wernham, sp. nov.

Planta præter flores glabra. *Folia* coriacea, oblongo-ovata vel oblongo-lanceolata, acuminata, nonnunquam caudata, 8–13·5 cm. × 2·5–5·5 cm., 5-plinervia; petiolus validus, vix ad 1 cm. longus. *Flores* in corymbis umbellatis alaribus subsessilibus, pedunculis ad 5 mm. longis; bracteæ inconspicuæ vel obsoletæ; pedicelli 1–2·5 cm. longi, recti, ut calyx pubescentes. *Calycis* 6 mm. longi tubus 5-pterus; limbus obscure minute dentatus. *Corolla* extus pubescens, tubulari-campanulata, ± 1·8 cm. longa; lobi brevissimi, late triangulares. *Stamina* 10, uniseriata; filamenta leviter in tubum cohærentia; antheræ ± 7 mm. longæ. *Ovarium* 5-loculare; stylus ± 5 mm. exsertus, apice decurvatus.

Camp VI *c*, 5500 ft.

The calyx is similar to that in the preceding species, but the leaves are smaller, the flowers differently arranged, &c.

§ 2. Cyclosiphon, Wernham, sect. nov. Calycis tubus teres.

This section will include all species previously described and referable to *Dimorphanthera*.

Dimorphanthera Wollastonii, Wernham, sp. nov.

Folia coriacea, glaberrima, elliptico-oblonga, breviter acuminata, obtusa, ± 21 cm. × 8·3 cm., 7-plinervia; petiolus validus, ad 1·5 cm. longus. *Flores* in fasciculis paucifloris e ligno plus minus vetere orti; pedicelli plus minus torti, striati, glabri, ca. 1·5 cm. longi, basi bracteis sæpius 3 ovatis obtusis imbricatis 7 mm. longis circumdati. *Calycis* tubus teres, breviter cylindricus, 5 mm. longus; dentes latissime triangulares, breves, obtusi. *Corolla* tubularis, basi ventricosa, apice brevissime et obtuse 5-lobata, tota vix 3·5 cm. longa. *Filamenta* 6 mm. longa, ad medium 2·5 mm. lata; antheræ 8–9 mm. longæ, connectivo extra rimarum basin producto bifido. *Stylus* filamentosus, ad 3·5 cm. longus.

Camp VI *a*, 3100 ft.

Related to *D. Forbesii*, F. Muell.; distinguished principally by the continuous unbevelled calyx-tube.

Vaccinium ardisioides, Wernham, sp. nov.

Frutex; ramuli cortice fusco induti, teretes, novelli præsertim incano-puberuli. *Folia* subcoriacea, lanceolata, acuminata, obtusa, glabra, ca. 3·5 cm. longa, 1 cm. lata;

venæ secundariæ subtus prominulæ, utrinque ca. 4 petiolus subglandulari-papillosus. *Flores* glaberrimi, in racemos 6–7 cm. longos glabros laxos ca. 10–14-floros dispositi. *Pedicelli* graciles, insuper curvati, ad 1·5 cm. longi, apice necnon inflati; bracteæ paucæ, inconspicuæ, pedunculi prope basin insertæ. *Calycis* tubus ovarium amplectens, tubulari-campanulatus, ca. 3 mm. longus; lobi 5, rotundati, ad 2 mm. longi. *Corolla* late urceolata, apiculato-acuminata, 6-7 mm. longa; lobi brevissimi, rotundati. *Stylus* ± 5 mm. longus.

Camps XI to XII, 8300 to 11,000 ft.

Distinct in the glabrous flowers, which are shortly and bluntly apiculate in bud, borne on long slender pedicels in lax racemes and situated in the upper axils.

VACCINIUM BODENII, Wernham, sp. nov.

Fruticulus glaber; ramuli valde angulati, dense foliosi. *Folia* crasse coriacea, ovata vel elliptica, apice rotundata, fere 1 cm. longa, 5·5 mm. lata, utrinque glabra; venæ supra celatæ, subtus prominulæ, paucæ nec vero valde manifestæ. *Flores* solitarii vel bini axillares; pedicelli ad 3 mm. longi, in calycem brevissimum latissime et obscuriuscule dentatum desinentes. *Corolla* conico-urceolata, 5 mm. longa, basi 4–5 mm. lata, extus ut calyx glabra; lobi breves, rotundati, patentes.

Camps XII to XIII, 11,000 to 12,500 ft.

Characterised by the tough, small leaves and small flowers on very short, thick pedicels. Allied, apparently, to *V. ambyandrum*, F. Muell.

VACCINIUM CŒLORUM, Wernham, sp. nov.

Caulis ramosus, subglaber. *Folia* coriacea, elliptica, 7–8 mm. × 4–5 mm., apicem rotundatum versus obscure crenulata, basi rotundata. *Flores* solitarii vel bini, in pedicellis 6–7 mm. longis, omnino glabri; bracteæ lanceolatæ, pedunculi basin amplectentes, imbricatæ. *Calyx* brevissimus, ± obscure 5-dentatus. *Corolla* globoso-urceolata, insuper in apiculum brevem elliptice lobatum constricta, tota 6–7 mm. longa, 5–6 mm. lata.

Camps XIII to XIV, 10,500 to 12,500 ft.

Distinguished by the very small, thick, elliptic leaves and short inflated flowers.

VACCINIUM CULMINICOLUM, Wernham, sp. nov.

Suffruticulus ramulis graciliusculis novellis hispidulo-puberulis. *Folia* crasse coriacea, venis præter centralem plus minus celatis, in margine hic inde irregulariter sparse ciliata, aliter glabra, ovata, apice basique rotundata, 9–12 mm. × 6–8·5 mm.; petiolus brevissimus. *Flores* solitarii, pedicellis sparse hispidulo-pilosis 3 mm. longis suffulti; bracteæ inconspicuæ. *Calycis* tubus brevis, sparse pilosus; dentes angulares, ciliati. *Corolla* globoso-urceolata, glabra, 8 mm. longa; lobi anguste obtusi, 2–3 mm. longi.

Camps XIII to XIV, 10,500 to 12,500 ft.

Related to *V. cyclopense*, J. J. Smith, which it resembles closely in leaf-shape; but the corolla-lobes of our species are relatively long and narrow, and almost spathulate.

VACCINIUM HISPIDULISSIMUM, Wernham, sp. nov.

Frutex caule hispidulo. *Folia* ovato-lanceolata, longe subacute acuminata, firme chartacea, ca. 5 cm. longa, 1·6 cm. lata, alternatim subdistantia, supra sparsissime pilosa, subtus papillosa, in costa centrali marginemque versus densiuscule aliter sparsissime patule pilosa; petiolus brevissimus, hispidus; venæ nisi sub lente vix manifestæ; margo revolutus. *Flores* in racemos subcorymbosos terminales ca. 5-floros 2·5–3 cm. longos hispidulos dispositi; pedicelli 8–12 mm. longi; bracteæ nullæ. *Calyx* cum ovario hispidulissimus; lobi lanceolati, longe subacute acuminati, 5 mm. longi vel longiores. *Corolla* acuminato-urceolata, extus glabra, fere 1 cm. longa, apice constricta; lobi brevissimi, late ovati, obtusi, deflexo-patentes.

Camp VI *c*, 5500 ft.

Distinct in the dense hispidulous covering of the branchlets, leaf-veins, petioles and inflorescence, the long-acuminate leaves, and the narrow glabrous corolla.

VACCINIUM PICEIFOLIUM, Wernham, sp. nov.

Caulis glaber, fruticulosus. *Folia* densissime conferta, oblanceolato-oblonga, obtusa, glaberrima, ± 1 cm. × 3 mm. *Flores* solitarii, pedicellis glabris 8–10 mm. longis suffulti; bracteæ subminutæ, cum bracteolis inconspicuæ. *Calycis* glaberrimi tubus brevis, subangulatus; dentes 4, late deltoidei. *Corolla* glaberrima, urceolata, breviter et obtuse 4-lobata, 5–6 mm. longa, 4 mm. lata.

Camps X to XI, 6700 to 8300 ft.

Distinguished by closely resembling a *Picea* in the shape and the arrangement of the leaves. The absence of conspicuous bracts is a distinct feature.

VACCINIUM NYCTEROIDES, Wernham, sp. nov.

Frutex glaberrimus, nisi ramuli angulati novelli cum pedicellis sparse glanduloso-puberuli. *Folia* coriacea, ovato-lanceolata, ± 2·5 cm. longa, 1 cm. lata, obtuse acuminata, basi rotundata, utrinque glabra; petiolus ad 3·5 mm. longus, puberulus. *Flores* in racemos breves puberulos dispositi, nutantes, in pedicellis ad 1 cm. longis valde deflexis; bracteæ obsoletæ. *Calycis* tubus obconico-hemisphæricus, glanduloso-pubescens, vix 2 mm. longus; lobi triangulares, acuti, subglabri, ca. 1·5 mm. longi. *Corolla* extus sparse puberula, anguste acuminato-urceolata, 1·1 cm. longa, insuper in lacinias 5 triangulari-lineares obtusas 2–4 mm. longas divisa. *Antherarum* uterque loculus insuper poro obliquo dehiscens, dorso bi-aristatus. *Stylus* tenuis, 1–2 cm. longus.

Camps XI to XII, 8300 to 11,000 ft.

According to the description and figures in 'Nova Guinea,' xii. 164, t. L., this species appears to be nearly allied to *V. profusum*, J. J. Smith. This latter, however, is a woodland species growing at much lower altitudes, with much more profuse inflorescence; differing, moreover, in details of leaf-shape and floral characters which may be readily discovered on comparing the descriptions of the two species.

VACCINIUM THIBAUDIFOLIUM, Wernham, sp. nov.

Frutex glaber. *Folia* subcoriacea, elliptica, 7 cm. × 2·5 cm.—9·5 cm. × 4 cm., longiuscule acute acuminata, supra nitentia; venæ utrinque 2–3 e basi ortæ, insuper arcuatæ, utrinque prominulæ. *Flores* in racemos axillares laxissimos glabros 7–9 cm. longos vel longiores dispositi, in pedicellis glabris tenuibus 2 cm. longis vel longioribus, quisque a bractea sæpius ovato-acuminata acuta membranacea ±1 cm. longa 5 mm. lata subtenta. *Calyx* glaber, campanulatus, deltoideo-5-lobatus, totus 3 mm. longus. *Corolla* globoso-urceolata, extus subglabra, 4–5 mm. longa, in apiculo breviter rotundo-5-lobata. *Stylus* crassus, sulcatus, minute pulverulentus, 3 mm. longus.

Camp III, 2500 ft.

Allied to *V. philippinense*, Warbg.; distinguished, among other features, by the longer pedicels and the different calyx-limb.

VACCINIUM TIMONIOIDES, Wernham, sp. nov.

Caulis ramosus. *Ramuli* gracillimi, sparse puberuli. *Folia* ovato-rhomboidea, conspicue acuminata, basi obtusa, acuta, ±3 cm. × 1 cm., pergamacea, utrinque glabra, venis prominulis, margine revoluto; petiolus brevissimus, puberulus. *Flores* omnino glaberrimi, in racemos glabros ebracteatos ad 4 mm. longos dispositi; pedicelli gracillimi, insuper curvati, 10–15 mm. longi vel longiores. *Calycis* lobi 5, e basi latiuscula tenuissime subulati, ad 1·5 mm. longi. *Corolla* anguste acuminato-urceolata, glabra, 6–7 mm. longa; limbus patente minutiusculus. *Ovarium* (vel calycis tubus) globosum, glabrum, 2·3 mm. longum.

Camp VI *b*, 3900 ft.

Allied to *V. hispidulissimum* (*vide supra*), differing especially in the glabrousness and the globose calyx-tube.

VACCINIUM WOLLASTONII, Wernham, sp. nov.

Fruticulus caule sat tenui glanduloso-puberulo infra glabrescente. *Folia* crassa, lanceolata vel ovato-lanceolata, apicem subacutum versus leniter angustata, basi subacuta, minute crenulata, utrinque glaberrima, vix 7 mm. longa, 3 mm. lata; venæ supra insculptæ, subtus prominulæ; petiolus crassiusculus, brevissimus. *Flores* solitarii; pedicelli glaberrimi, ad 8 mm. longi; bracteæ glaberrimæ, lineares, subspathulatæ, 2 mm. longæ, imbricatæ. *Calycis* tubus infundibularis, glaber; lobi late ovati, acuti, breviter acuminati. *Corolla* 3 mm. longa, nec multo minus lata, extus glabra, apice vix constricta; lobi lati, rotundati.

Camps XI to XIV, 8300 to 12,500 ft.

Characterised by the very small leaves with margins crenulate in the distal half.

ERICACEÆ.

(By H. F. WERNHAM.)

GAULTHERIA CALYCULATA, Wernham, sp. nov.

Frutex modicus; ramuli novelli minute puberuli, mox glabrescentes. *Folia* subcoriacea, glabra, elliptica, basi rotundata, parum acuminata, subacuta, 1·7–2·5 cm.

longa, serrata, subtus papilloso-punctata; petiolus 2–3·3 mm. longus, glabratus. *Racemi* laxi, puberuli; bracteæ concavo-lanceolatæ, obtusæ, dense ciliatæ, ad 4–5 mm. longæ. *Pedicelli* 5 mm. longi, sparse pubescentes. *Bracteolæ* late ovatæ, glabræ nisi ciliatæ. *Calycis* lobi ovati, acuti, breviter acuminati, 2·5 mm. longi, ciliati. *Corolla* extus glabrata, 4 mm. longa; lobi brevissimi. *Fructus* 6–7 mm. in diam.

Camps XI to XIII, 8300 to 10,500 ft.

Recognisable by the glabrous shoots, small elliptic leaves, and calyculate flowers.

Rhododendron retusum, Benn. Pl. Jav. Rar. 88, t. 20.

Camps VI *b*, VI *c*, IX and X, 3900 to 6700 ft.

Distrib. Java, Sumatra, and Philippine Islands.

Rhododendron anagalliflorum, Wernham, sp. nov.

Fruticulus ramulis sparsiuscule lepidotis gracillimis. *Folia* subcrassa, verticillatim conferta, obovata, ad 6 mm. × 3 mm., supra subnitentia, subtus sparse punctata, discoloria; venæ omnino occlusæ. *Flores* sæpius solitarii; pedicelli lepidoti, tenues, ad 8 mm. longi. *Corolla* latiuscule campanulata, extus glabra, tota vix 1 cm. longa; lobi lati, rotundati, vix 5 mm. longi.

Camp VI *b*, 3900 ft.

Allied to *R. Pulleanum*, Koorders, and *R. minimifolia*, Wernham (*vide infra*), but clearly distinct in the form of the corolla.

Rhododendron asparagoides, Wernham, sp. nov.

Frutex glaber; ramuli novelli obtuse angulati, subsulcati. *Folia* verticillata, crasse chartacea, margine vix revoluta, oblonga, breviter acuminata, subacuta, basi acuta, 10–16 cm. × 4·5–5·5 cm.; venæ secundariæ utrinque prominulæ, utrinque ca. 11–14, nec valde conspicuæ; petiolus ca. 1·5 cm. longus. *Flores* magni, coccinei (*Kloss*), in umbellam multifloram dispositi cujus receptaculum tandem ellipsoideo-inflatum basi perulas fert deciduas imbricatas obovatas oblongas circa medium crassiusculas marginem versus membranaceas concavas intus glabras extus obscure asperulas; pedicelli minute et sparse pubescentes, 3·5 cm. longi. *Corollæ* campanulatæ tubus extus basin lobatam versus sparsissime lepidotus, aliter glaber, ca. 3·5 cm. longus, in ore fere 2 cm. latus; lobi glabri, obovati, fere 5 cm. longi, 3·5 cm. lati. *Antheræ* 7 mm. longæ; filamenta 4·7 cm. longa, basin versus cinereo-pubescentia. *Ovarium* dense breviter cinereo-pubescens, 1·1 cm. longum. *Stylus* 4·1 cm. longus, insuper glabratus.

Camps VII to VIII, 3600 to 4900 ft.

Related to *R. Devriesianum*, Koorders, but distinct in the long pedicels and campanulate corolla; also to *R. Englerianum*, Koorders, from which it differs in the shape and venation of the leaves.

Rhododendron Bodenii, Wernham, sp. nov.

Frutex ramulis glabratis cortice rugosulo striato indutis obtuse angulatis. *Folia* persistentia, crasse coriacea, verticillata, obovato-elliptica, apice rotundata, basi

rotundata vel subcordata, ad ca. 5·5 cm. longa, 3 cm. lata, utrinque glaberrima, subtus crebre punctis depressis sæpe nigris onusta; vena centralis supra impressa, subtus valde prominens, venæ secundariæ utrinque 6–10 utrinque prominulæ; petiolus validissimus, ad 4 mm. longus. *Perulæ* deciduæ, glabræ, forte concavæ, ovatæ, acutæ, ad 1·3 cm. longæ, 7 mm. latæ, basi latæ. *Flores* majusculi, in umbellas 5–8-floras dispositi; pedicelli 1·3 cm. longi, sparse lepidoti, graciles; bracteoli setacei, glabri, vix ad 1 cm. longi. *Corolla* tubularis; tubus fere ad 5·5 cm. longus, extus sparse lepidotus, intus glaber; lobi rotundati, 1·4 cm. × 1 cm. *Filamenta* glabra.

Camps XI to XII, 8300 to 11,000 ft.

Allied to *R. Carringtoniæ*, F. Muell., but distinct in the narrower and shorter tube of the corolla, which is glabrous within, and the broader limb, as well as the glabrous filaments.

RHODODENDRON CALCEOLARIOIDES, Wernham, sp. nov.

Frutex glaber. *Folia* verticillata, subcoriacea, anguste elliptica, utrinque subacuta, breviter acuminata, 5·5–6·5 cm. × 2–2·7 cm., margine vix revoluto; venæ supra impressæ, centralis subtus prominens, secundariæ utrinque ca. 8, prominulæ; petiolus ad 6–7 mm. longus, supra subcanaliculatus. *Pedicelli* subfilamentosi, ad 4·5 cm. longi vel longior; bracteolæ setaceæ, 6–8 mm. longæ. *Corolla* extus glabra, nonnunquam obscure lepidota; tubus latiusculus, 7–8 mm. longus; lobi obovati, ad ca. 1 cm. longi, 7 mm. lati. *Filamenta* desuper sparse pubescentia. *Ovarium* minute pubescens, 5 mm. longum. *Stylus* ad 9 mm. longus.

Camps VI *a*, IX, and X, 3100 to 6700 ft.

This species is nearly related to *R. glabrifilum*, J. J. Smith, differing therefrom principally in its much shorter and stouter corolla-tube. It also has affinities with *R. Vonrömeri*, Koorders, but the flowers are smaller and the corolla-tube is relatively longer.

RHODODENDRON CALLICHILIOIDES, Wernham, sp. nov.

Frutex verisimiliter repens, glaber. *Folia* verticillata, coriacea, lanceolata vel ovata, longe acuminata, acuta, basi rotundata, 9–15 cm. × 2·5–4 cm., utrinque glaberrima, margine revoluto; venæ nisi centralis subtus prominens vix manifestæ; petiolus ad 1 cm. longus, validus, supra applanatus. *Flores* rosei, majusculi; pedicelli tenues, ad 3·5–4 cm. longi, glabri, læves. *Corolla* subinfundibularis, extus glabra; tubus 1·6 cm. longus, basi lobatus, in ore ad 1·5 cm. latus; lobi obovati, apice rotundati, ad 2·5 cm. longi × 1·5 cm. lati. *Filamenta* desuper conspicue argenteo-villosa. *Ovarium* argenteo-pubescens, 6·5 mm. longum, stylum subæquans.

Camps III to VI *a*, 2500 to 3100 ft.

Near *R. Wentianum*, Koorders, differing especially in the much longer corolla-tube. Still more closely related, apparently, to the recently-described *R. angulatum*, J. J. Smith; but our species has much smaller flowers.

Var. MINOR, Wernham, var. nov.

Pedicelli breviores. *Flores* minores coccinei (*Kloss*).

Camps VI *c*, VII, and VIII, from 3600 to 5500 ft.

RHODODENDRON CANDIDAPICULATUM, Wernham, sp. nov.

Fruticulus, ramulis novellis dense ferrugineo-lepidotis. *Folia* alternantia, crassa, margine plana, ovata vel elliptica, 5–9 mm. × 3–5·5 mm., subacuta, apice sæpe puncto candido nitente onusta, glabra, supra nitentia, subtus striato-strigosula; venæ nisi centralis hebetiuscula occlusæ; petiolus manifestus. *Flores* subsolitarii; pedicelli rufo-lepidoti, ca. 1–5 cm. longi. *Corollæ* extus glabræ tubus subcylindricus, 1–6 cm. longus, 6–7 mm. latus; lobi rotundati, 9 mm. × 7 mm. *Ovarium* cum stylo glabrum, 6 mm. longum.

Camps XIII to XIV, 10,500 to 12,500 ft.

Allied to *R. Pulleanum*, Koorders, but the leaves are not punctate and the flowers are much larger. Closely allied to J. J. Smith's *R. microphyllum*, Bull. Jard. Bot. Buitenz. 2e ser. n. viii. (1912) 51; Nova Guinea, xii. t. 29. c, but readily distinguished by the much more slender corolla-tube.

RHODODENDRON CARSTENSENSE, Wernham, sp. nov.

Frutex ramulis angulatis mox cortice lævi indutis. *Folia* coriacea, alternantia, sæpius obovata, apice rotundata, basi acuta, 6·5–10·5 cm. × 4–5·5 cm., utrinque glabra, subtus crebre minute punctata; venæ utrinque manifestæ, supra impressæ, subtus centralis desuper valde prominens, secundariæ utrinque 8–10 prominulæ; petiolus ad 1·5 cm. vel ultra longus. *Perulæ* deciduæ obovato-lanceolatæ, basin versus oblongo-acuminatæ, membranaceæ, 4 cm. × 1·8 cm., sessiles, dorso circa medium dense molliter sericeæ, basin versus utrinque dense appresse pilosæ, supra minute et obscure pubescentes. *Flores* majusculi in capitulum 6–9-florum sessile dispositi; pedicellus ad 5 mm. longus; bracteoli filiformiter lineares, 3–8 cm. longi, pubescentes. *Calyx* minutus, obliquus, annularis. *Corollæ* extus glabræ tubus tubularis, insuper vix ampliatus, ad 7 mm. latus, fere ad 5·5 cm. longus; lobi obovato-rotundati, 1·7 cm. × 1·4 cm.

Camps IX to X, 5500 to 6700 ft.

Allied to *R. Armitii*, F. M. Bailey, differing especially in the shorter tube and relatively narrower limb of the corolla.

RHODODENDRON CŒLORUM, Wernham, sp. nov.

Suffrutex ramulis præter novellos dense rufo-lepidotos glabris mox cortice subargenteo indutis. *Folia* alternantia, dense conferta, crassa, margine revoluta, elliptica vel oblonga, ca. 1 cm. × 5·5 mm., glabra, supra nitentia, subtus sparsiuscule punctata; venæ secundariæ occlusæ. *Flores* in umbellas 2–4-floras dispositi; pedicelli lepidoti, 1·7 cm. longi. *Corollæ* extus glabræ tubus cylindricus, 2·3 cm. longus, basi 5 mm. in ore ad 1 cm. latus; lobi suberecti, suborbiculares, 7–8 mm. longi. *Filamenta* glabra. *Ovarium* dense ferrugineo-lepidotum, ca. 1 cm. longum; stylus glaber, 2 cm. longus.

Camps XIII to XIV, 10,500 to 12,500 ft.

Near *R. candidapiculatum* (see p. 96); distinct in the punctate leaves with inrolled margins.

RHODODENDRON CONIFERUM, Wernham, sp. nov.

Fruticulus. Folia verticillata, crasse coriacea, margine vix revoluta, elliptico-oblonga, 2 cm. × 1 cm. vix excedentia, utrinque glaberrima, supra dilute viridia, subtus flavo-brunnea; venæ secundariæ omnino occlusæ; petiolus crassiusculus, ad 4·5 mm. longus. *Perulæ* deciduæ, inflorescentiam ante anthesin occlusam cingentes, membranaceæ, nitentes, valde concavæ, ovatæ, subacutæ, strobilum densum ovatum 1·6 cm. × 8 mm. formantes. *Flores* in umbella 3–4-flora; pedicelli dense ferrugineo-lepidoti, 1–2 cm. longi. *Corollæ* ochraceæ extus lepidotæ tubus subcylindricus, 1·2 cm. longus, basi 5 mm. in ore 8 mm. latus; lobi rotundati ca. 5 mm. longi. *Filamenta* glabra. *Ovarium* dense lepidotum.

Camp XIV, 12,500 ft.

Related to *R. Pulleanum*, Koorders, but distinct in its larger flowers with glabrous corolla.

RHODODENDRON CYRTOPHYLLUM, Wernham, sp. nov.

Suffrutex verisimiliter; ramuli novelli, lepidoto-scabriduli. *Folia* verticillata, crasse coriacea, subcarnosa, margine revoluta, elliptica, ad 2·5 cm. × 1·1 cm., apice basique rotundata vel subtruncata, basi nonnunquam subcordata, utrinque densiuscule lepidoto-scabridula; venæ secundariæ subtus quidem manifestæ, utrinque ca. 6; petiolus crassus, ca. 3 mm. longus. *Flores* rosei in umbella ca. 8-flora basi perulis deciduis concavis lævibus 8 mm. longis cincta; pedicelli velut flores lepidoti, ad 1·2 cm. longi. *Corollæ* tubularis tubus curvatus, insuper parum (ad 1 cm. in ore) ampliatus, vix 2·5 cm. longus; lobi rotundati, ca. 8 mm. × 8 mm. *Filamenta* basin versus sparsissime pubescentia. *Ovarium* minute pubescens, ca. 5 mm. longum.

Camps XI to XII, 8300 to 11,000 ft.

Near *R. spondylophyllum*, F. Muell.; distinguished by the leaf-shape and margin.

RHODODENDRON FILAMENTOSUM, Wernham, sp. nov.

Frutex glaber; ramuli, præcipue novelli, valde angulati, subalati, graciles. *Folia* verticillata, chartacea, elliptica, utrinque angustata, apice obtusata, 8·5 cm. × 2·9 cm.; vena centralis supra impressa, subtus prominula, venæ secundariæ utrinque 8–11, supra prominulæ, subtus vix manifestæ; petiolus 8 mm. longus, glaber. *Flores* in capitulo 8–12-floro sessili subsessiles; bracteolæ filamentosæ, fere 3 cm. longæ, subglabræ. *Corollæ* extus glabræ tubus rectus, angustus, insuper vix ampliatus, 4 mm. latitudine nec excedens, 4 cm. longus; lobi elliptici, 1·6 cm. × 8·5 mm., apice rotundati. *Ovarium* sericeo-pubescens, 1 cm. longum; stylus insuper glaber, 1·8 cm. longus.

Camp VI *b*, 3900 ft.

Related to *R. arfakianum*, Becc.; differs particularly in the almost sessile flowers with straight corolla-tube.

RHODODENDRON HAMELIIFLORUM, Wernham, sp. nov.

Fruticulus ramulis novellis dense lepidotis. *Folia* alternantia vel subverticillata, crasse coriacea, obovato-orbicularia, vix 1 cm. × 8 mm. excedentia, supra nitentia, costa centrali valde impressa, subtus discoloria, sæpe punctata; apice sæpius emarginata; petiolus glaber, distinctus, ad 2·5 mm. longus. *Flores* subsolitarii; pedicelli graciles, ca. 1·5 mm. longi, dense lepidoti. *Calyx* rectus. *Corollæ* extus basin versus ± obsolete lepidotæ tubus cylindricus, 1·4–1·7 cm. longus, ca. 5 mm. latus; lobi rotundati, vix 5 mm. longi.

Camps XI to XII, 8300 to 11,000 ft.

Allied to *R. Giulianettii*, Lauterb., but our species has smaller leaves and shorter corolla-tube.

RHODODENDRON MINIMIFOLIUM, Wernham, sp. nov.

Fruticulus ramulis dense ferrugineo-lepidotis. *Folia* verticillatim congesta, crassa, elliptica, margine plana nec revoluta, ad 6 mm. × 4 mm., supra nitentia, subtus rugosulo-striata, lepidoto-punctata, discoloria; venæ omnino occlusæ. *Flores* rosei, sæpius solitarii; pedicelli dense lepidoti, 8 mm. longi. *Corollæ* tubus late cylindricus, 7–8 mm. longus, 4–5 mm. latus, extus lepidotus; lobi suborbiculares, 4·5 mm. × 3·3 mm., glabri.

Camps XI to XII, 8300 to 11,000 ft.

Allied to *R. Pulleanum*, Koorders, but distinguished by the shorter, broader corolla-tube and relatively longer corolla-lobes.

RHODODENDRON NUBICOLA, Wernham, sp. nov.

Frutex. *Folia* crasse coriacea, verticillata, elliptica, utrinque breviter acuminata, margine revoluta, 4·5–8 cm. × 1·8–3·2 cm., apice obtusissima, utrinque glaberrima, supra nitentia, subtus valde flavo-discoloria, sæpe punctata; venæ secundariæ supra subimpressæ, subtus prominulæ, utrinque ca. 6, nonnunquam occlusæ; petiolus 1 cm. longus, glaber. *Flores* pauci (2–4) in umbella; pedicelli graciles, ca. 1 cm. longi, sparsissime pubescentes, obscure lepidoti. *Corollæ* extus glabræ tubus 2–2·5 cm. longus, basi ad 5–6 mm. latus, insuper in ore vix ad 1 cm. ampliatus; lobi ovales, rotundati, ca. 1·4 cm. longi. *Filamenta* glabra, 2·8 cm. longa. *Ovarium* pubescens, 6 mm. longum; stylus 1·8 cm. longus, insuper glaber.

Camps XI to XIII, 8300 to 10,500 ft.

Distinguished from *R. culminicolum*, F. Muell., its nearest ally, by the different relative lengths of the corolla-tube and lobes.

RHODODENDRON OREADUM, Wernham, sp. nov.

Frutex glaber; ramuli compressi, striati. *Folia* verticillata, subcoriacea, elliptica vel oblonga, 10–14 cm. × 4·5–5 cm., utrinque angustata, subacuta; venæ secundariæ supra impressæ, subtus prominulæ, utrinque 9–12; petiolus ca. 1 cm. longus, rugosulus. *Flores* capitati, subsessiles. *Corollæ* glabræ tubus 4·5 cm. longus,

subcylindricus, insuper vix ampliatus, in ore ca. 8 mm. latus; lobi late elliptici, 1·8 cm. × 1·3 cm. *Filamenta* desuper sparsiuscule minute argenteo-pubescentia. *Ovarium* dense subappresse flavo-pubescens, ca. 1 cm. longam. *Stylus* insuper glabrescens, ca. 4 cm. longus.

Camps VII to VIII, 3600 to 4900 ft.

Comparable with *R. Hellwigii*, Warb., from which it differs in the shape of the leaves and flowers.

RHODODENDRON ULTIMUM, Wernham, sp. nov.

Fruticulus. *Folia* conferta, alternantia, coriacea, margine revoluta, late elliptica vel suborbicularia, ad 2·7 cm. × 1·9 cm., apice rotundata, basi in petiolum brevissimum angustata, utrinque glabra, subtus sæpe crebre lepidoto-punctata. *Flores* rosei, ca. 2–3 in pedicellis 1·2–1·4 cm. longis lepidotis. *Calyx* valde obliquus. *Corollæ* extus glabræ tubus 2·5 cm. longus, basi ca. 6 mm., in ore ad ca. 1·4 cm. latus; lobi rotundati, 1·6 cm. × 1·75 cm. *Ovarium* glabrum.

Camps XIII, XIV, 10,500 to 12,500 ft.

Related to *R. comptum*, C. H. Wright, but differing in the size and shape of the corolla.

RHODODENDRON WOLLASTONII, Wernham, sp. nov.

Frutex glaber; ramuli graciles, complanati. *Folia* pseud-opposita, chartacea, ovalia, ad ca. 10 cm. × 4·5 cm., acuminata, subacuta, margine sæpius plana nec revoluta, utrinque glabra; venæ utrinque prominulæ, nisi centralis supra impressa; petiolus vix 1 cm. longus. *Flores* rosei, minusculi; pedicelli sparse rufo-lepidoti, ca. 2·5 cm. longi, valde compressi. *Corollæ* campanulatæ extus glabræ tubus 1·4 cm. longus, in ore ca. 1 cm. latus; lobi obovati, apice rotundati, inæquales, maximi 2·2 cm. × 1·3 cm., minores 1·7 cm. × 1 cm.

Camp VI *a*, 3100 ft.

Apparently related to *R. Hansemanni*, Warb., differing in the shape and venation of the leaves, &c.

MISCHOPLEURA, Wernham, Ericacearum e tribu Rhodorearum novum genus.

Calyx 5-partitus; segmenta lanceolata. *Petala* soluta, oblonga, obtusa, truncata vel retusa. *Stamina* 10; filamenta longiuscula, plus minus flexuosa; antheræ filamentis breviores, dorso muticæ, apice bilobæ, pubescentes, poris apicalibus dehiscentes. *Discus* crassus, carnose 5-lobus. *Ovarium* subglobosum, subsulcatum, biloculare; stylus brevis, validus, subconicus, persistens; stigma truncatum; ovula in loculo utroque 2 pendula. *Bacca* globosa, stylo persistente coronata.—Fruticuli vaccinioidei vel epacrideoidei. *Folia* integra, crassa, subtus discoloria, reticulatione notabili, costa centrali pervalida in petiolum crassum brevem decurrente. *Flores* (margo sæpius revolutus) inter minimos in cymas umbellatas 2–3-floras in axillis superioribus dispositi; pedicelli sæpe tenuissimi, flexuosi.

A remarkable genus, distinguished especially by the bicarpellary ovary with two pendulous ovules in each loculus. The baccate fruit points to affinity with Arbuteæ, the polypetalous corolla and habit to Rhodoreæ. It should, I think, be regarded as an anomalous member of the latter tribe with the Guianan *Ledothamnus*, perhaps, as its nearest ally.

The collection includes the following species:—

MISCHOPLEURA OVALIFOLIA, Wernham, sp. nov.

Ramuli novelli minute rufo-puberuli mox lignosi. *Folia* 3-verticillatim conferta, elliptica vel ovalia, 1–1·4 cm. × 5–8 mm., utrinque rotundata, apice minute obtuse apiculata, supra nitentia, subtus cano-pulverulenta necnon sparsim sericeo-pilosa, utrinque reticulatione prominula. *Pedunculi* graciles, sparse minute pilosi, ± 8 mm. longi; pedicelli ± 1 cm., indumento simili induti, sæpius nutantes. *Calyx* extus sparse strigillosus, 2·5 mm. longus, fere ad basin in lacinias 5 lanceolatas intus apicem versus barbatas divisus. *Petala* oblonga, obtusa, subtruncata, glabra, calycem vix excedentia. *Bacca* ±5 mm. in diam.

Camps XI to XII, 8300 to 11,000 ft.

MISCHOPLEURA RIDLEYANA, Wernham, sp. nov.

Ramuli novelli graciles, obscure rufo-sericeo-puberuli, mox lignosi. *Folia* sæpius subverticillata, lineari-lanceolata, ± 1·5 cm. × 3 mm., acuminatissima, apice acuto barbata, supra glabra, nitentia, margine necnon in costa centrali subtus irregulariter sparse sericeo-pilosa, subtusque discoloria, cano-pulverulenta. *Flores* 2–3-ni; pedunculi 2–4 mm., recti; pedicelli subfilamentosi, flexuosi, ± 6 mm. longi, subglabri. *Calyx* extus basi sparse hirtus; lobi lanceolati, extus glabri, intus apicem versus barbati, vix 2 mm. longi. *Petala* elliptica, truncata, calycem non excedentia, glabra.

Camp VI *c*, 5500 ft.

Distinguished at once from the previous species by the leaf-shape. Mr. Ridley called my attention to this second species.

EPACRIDEÆ.

(By H. F. WERNHAM.)

STYPHELIA OBTUSIFOLIA, J. J. Smith, in Lorentz, Nov. Guin. viii. 798.

Camps XIII to XIV, 10,500 to 12,500 ft.

STYPHELIA CARSTENSENSIS, Wernham, sp. nov.

Fruticulus ramosus; ramuli novelli sparsiuscule minute pubescentes. *Folia* oblongo-lanceolata, subacuta, ± 6 mm. longa, ± 2·5 mm. lata, subacuta, plurivenia, utrinque glabra. *Inflorescentiæ* paucifloræ; bracteolæ 2, subconnatæ. *Sepala* ovata, obtusa, 2–7 mm. longa, ciliolata. *Corolla* ± 4·5 mm. longa, extus glabra, intus basin versus loborum lanceolatorum dense barbata, aliter glabra; tubus quam lobi brevior. *Antheræ* brevissimæ. *Ovarium* multiloculare; discus inconspicuus.

Camps XI to XII, 8300 to 11,000 ft.

Allied to *S. Vannouhuysii*, J. J. Smith; distinguished by the closer leaf-venation and relative length of the corolla-lobes and their indumentum.

STYPHELIA CULMINIS, Wernham, sp. nov.

Fruticulus dense foliosus; ramuli præter novellos hic inde irregulariter ac minute puberulos glabri. *Folia* ovata, 5 mm. × 3·5 mm., basi rotundata, apice subacuta, utrinque glabra, supra nitentia venis celatis, subtus venis sæpius 5 prominulis. *Flores* in fasciculis lateralibus ca. 6–12-floris sessilibus sessiles; bracteolæ 2–3 imbricatæ. *Sepala* ovata, obtusa, parallele venosa, 2·3 mm. longa. *Corolla* cylindrico-campanulata, extus glabra, intus ad loborum basin barbata, aliter glabra, 6·2 mm. longa, 3·3 mm. diam.; lobi breves, lanceolati, obtusi, 1·5 mm. longi. *Antheræ* parvæ. *Ovarium* multiloculare.

Camps XIII to XIV, 10,500 to 12,500 ft.

Distinguished from *S. Vannouhuysii*, J. J. Smith, its nearest ally, by the differently shaped leaves and longer flowers.

STYPHELIA NUBICOLA, Wernham, sp. nov.

Fruticulus ramosus; ramuli, præsertim novelli, dense breviter pubescentes. *Folia* coriacea, elliptico-lanceolata, acutissima, ± 8·5 mm. × 3 mm., manifeste etsi breviter petiolata, utrinque brevissime vel obscure ciliolata, glabra, subtus plus minus discoloria; venæ obscuræ, numerosæ. *Inflorescentiæ* paucifloræ; bracteæ et bracteolæ ovato-rotundatæ uti sepala conspicue parallele venosæ præsertim in alabastris. *Flores* ± 5·7 mm. longi. *Corollæ* extus glabræ tubus 3·2 mm. longus; lobi lanceolati, 2 mm. longi, intus loborum basin versus dense barbatæ. *Antheræ* brevissimæ. *Ovarium* globosum cum stylo truncato 2·3 mm. longum, a disci lobis ad dimidium amplexum, multiloculare.

Camps XI to XIV, 8300 to 12,500 ft.

Near *S. carstensensis*, Wernham (*vide supra*), but distinguished by the conspicuously-veined bracts, the relatively shorter corolla-lobes, and the rather larger leaves.

STYPHELIA VANDEWATERI, Wernham, sp. nov.

Fruticulus ramosus; ramuli novelli minute puberuli. *Folia* rigide coriacea, primo adscendentia, demum patentia, oblongo-lanceolata, apice subacuta, 7–10 mm. longa, ± 2 mm. lata, plurinervia, supra minute striata, subnitida, subtus lineatim minutissime cano-pulverulenta, apicem versus minute ciliolata, demum convexissima, pilis paucis hic inde conspersa; petiolus brevissimus, sine lente vix manifestus. *Inflorescentiæ* ± terminales nutantes; bracteæ rotundatæ, concavæ. *Flores* sessiles, vix 3 mm. longi. *Sepala* ovata, rotundata, ciliolata. *Corolla* extus glabra, intus plus minus uniformiter cano-hirsuta; tubus lobos lanceolatos subacutos excedens. *Fructus* 4-locularis, 2·7 mm. in diametro.

Camps XII to XIV, 11,000 to 12,500 ft.

Allied to *S. obtusifolia*, J. J. Smith, but the leaves are longer, the venation is different, and the corolla almost uniformly hairy within.

PRIMULACEÆ.

(By S. Moore.)

Lysimachia japonica, Thunb. Fl. Jap. 83.

Var. papuana, S. Moore, var. nov. *Caulis* (ut folia calycesque) densiuscule pubescens. *Folia* suborbicularia, summum 10×9 mm., plerumque circa 8×7 mm. *Pedunculi* 2–5 mm. longi.

Camps VIII to IX, 4900 to 5500 ft.

Distrib. (of type). East Asia to Australia.

This seems inseparable from the type except for the pubescence.

MYRSINACEÆ.

(By S. Moore.)

Maesa Klossii, S. Moore, sp. nov.

Ramuli subteretes, superne foliosi, glabri. *Folia* oblongo-lanceolata, apicem versus attenuata, apice obtusa, basi in petiolum brevem sensim extenuata, margine undulata, pergamacea, utrinsecus glabra, 13–16×3·5–4·5 cm. *Racemi* ± 4 cm. longi, in foliorum delapsorum axillis plerumque bini, petiolos circiter 4-plo excedentes, graciles, sat laxe florigeri, glabri. *Pedicelli* graciles, 2 mm. longi, floribus plane longiores; bracteæ bracteolæque parvulæ. *Calycis* segmenta tubo longiora, late ovata, obtusa, nigro-lineata, 1·2 mm. longa. *Corolla* 5-mera, calycem superans, fere 2 mm. longa, vix medium usque lobata, lobis ovatis obtusis reflexis lineis paucis fuscis percursis, 0·75 mm. longis. *Stamina* quam corollæ tubus breviora; antheræ filamentis circiter æquilongæ, 0·3 mm. longæ. *Ovarium* semisuperum, superne 5-lobulatum, quam stigma crassum longius, 1·75 mm. longum.

Canoe Camp, 150 ft.

Apparently a shrub with lanky branches, themselves giving off subdistant leafing branchlets. *Leaves* greyish when dry above, brownish below; lateral nerves about ten on each side of the midrib, and, like the latter, more conspicuous on the underside; petioles stout, about 1 cm. long. *Bracts* subulate, about 1 mm. long, rather longer than the lanceolate bracteoles.

Fruit not seen.

Near *M. ramentacea*, Wall., differing in shape of leaf and inflorescence.

Maesa ruficaulis, S. Moore, sp. nov.

Planta verisimiliter dioica. *Ramuli* bene foliati, aliquantulum anfracti, rufo-hirsuti. *Folia* breviter petiolata, oblongo-ovata, sat longe acuminata, apice acuta, basi rotundata leviterve cordata, margine denticulata vel breviter dentata, pergamacea, utrinque costis plus minus rufo-pilosis præsertim paginæ inferioris exemptis glabra,

usque ad 16×6 cm., sæpe circa 14×4·5 cm. *Flores* longipedicellati, in paniculas (reductione forsan racemos) axillares plus minus laxas maxime anfractuosas crebro bracteatas rufo-hirsutas 4·5–7 cm. longas dispositi. *Bracteæ* lineares, rufo-hirsutæ, sæpissime 2–3 mm. longæ. *Calyx* 2 mm. longus; segmenta lanceolata vel ovata, acuta, dorso rufo-hirsuta. *Corolla* campanulato-urceolata, 5-mera, usque ad medium divisa, fere 3 mm. diam.; lobi late rotundati, nigro-lineati, margine fere integri vel leviter erosuli, tandem patentes. *Stamina* ex corolla haud emergentia; filamenta brevissima; antheræ ovoideo-oblongæ, obtusissimæ, 1 mm. longæ, florum femineorum imminutæ filamentisque longioribus insidentes. *Ovarium* vix 2 mm. longum, semisuperum, floris masculi fere omnino superum; pars superior ovoidea, in stylum æquilongum desinens.

Camp I, 500 ft.

Leaves drying greyish green, slightly paler below; lateral nerves in 8–9 pairs, not very conspicuous; petioles 1–2 cm. long or rather longer, rufous-hirsute. *Pedicels* of ♀ flowers up to 12 mm. in length, average about 8 mm.; of ♂ flowers up to 8 mm., but usually shorter.

The affinity of this is with *M. rubiginosa*, Bl., which, with a somewhat different indumentum, has smaller leaves with slightly crenate margins, inflorescences shorter than the petioles, flowers on pedicels only 3–4 mm. long, and stamens reaching clear of the corolla-tube. *M. rufo-villosa*, Mez, from New Guinea, is different in several points, *e. g.* in the leaves and flowers, which are borne on pedicels 1 mm. in length.

The male plant has somewhat larger and longer stalked leaves than the female, with deeper toothing of the margins, more frequently branched inflorescences, shorter pedicels, large anthers, and scarcely any ovarial thickening under the calyx.

Maesa cotinoides, S. Moore, sp. nov.

Ramuli graciles, bene foliati, glabri. *Folia* pro rata parva, 5·5–7·5×2·7–3·5 cm., brevipetiolata, ovata vel ovato-oblonga, breviter cuspidato-attenuata, apice ipso obtusa, basi obtusa, tenuiter coriacea, pagina utrinque glabra. *Flores* parvi, in paniculam terminalem pyramidalem patule ramosam permultifloram puberulam digesti. *Bracteæ* ovatæ, acutæ, nigro-punctatæ, circa 1 mm. longæ; pedicelli subnulli. *Calycis* segmenta 0·75 mm. longa, ovata, obtusa, margine ciliolata, sparsissime punctulata. *Corolla* 5-mera, paullo ultra medium gamopetala, 1 mm. longa; segmenta obovata, obtusissima, calyce paullo longiora, maculis parvis perpaucis inspersa. *Antheræ* subsessiles, ovoideo-oblongæ, ex corolla haud eminentes, 0·5 mm. longæ. *Ovarium* (ut *stylus*) subevanidum.

Camp VI *a*, 3100 ft.

Leaves drying brownish, paler below; midrib flat or somewhat impressed above, very prominent below (together with the lateral nerves and the moderately close reticulum); petiole usually about 8 mm. long, broadly channelled above, glabrous. *Panicle* with very patent side branches, of which the lower reach 4 or 5 cm. in length; the whole inflorescence sometimes 10 cm. long, but often shorter, the pedicel (varying in length) at most 2 cm. long. *Flowers* rather more than 1 mm. in diameter.

Near *M. macrothyrsa*, Miq., and its allies, but distinguished from them at first sight by its leaves. In foliage it is much like *M. pachyphylla*, Merr., from the Philippines.

The species would appear to be diœcious, or at least polygamous, all the flowers (none quite expanded) examined having been males.

ARDISIA (§TINUS) DENHAMIOIDES, S. Moore, sp. nov.

Planta glabra. *Ramuli* sat graciles, superne foliati. *Folia* oblanceolata vel oblanceolato-oblonga, apicem versus sensim attenuata, apice obtusa, raro obtusissima, basin versus in petiolum brevem latumque gradatim angustata, tenuiter coriacea, non nisi obscure punctata, plerumque 6–9×1·8–3 cm. *Racemi* foliis breviores, axillares, gracillimi, perpauciflori, 3–5 cm. longi; pedicelli tenues, 7–8 mm. longi, flores parvos 3·5 mm. diam. longe excedentes. *Calyx* 1·25 mm. longus, usque ½ divisus; segmenta rotundata, imbricata (dextrorsum obtegentia), fere omnino integra, nigro-punctata. *Corolla* alte partita, 3·5 mm. longa; lobi oblongo-obovati, obtusissimi, punctis nigris æqualiter inspersi, 2–2·75 mm. lati. *Antheræ* subsessiles, 2 mm. longæ, apice mucronulatæ. *Ovarium* ovoideum, stylo breviore terminatum, sub flore circiter 1·5 mm. longum.

Camp I, 400 ft.

Apparently a shrub or shrublet. *Branches* 2–3 mm. in diameter; ultimate branchlets 1 mm. or less, the former bearing in their lower portion the prominent scars left by fallen leaves. *Leaves* with about 12 lateral nerves on each side of the midrib and several intervening nervules which are almost as conspicuous, all as well as the midrib fairly prominent on both faces; on both sides opaque glandular dots are visible in transmitted light, evenly scattered over the surface.

Apparently near *A. pendula*, Mez, and its allies, but easily distinguished by the foliage and small flowers. The foliage greatly resembles that of the Australian *Denhamia obscura*, Meisn.

ARDISIA (§TINUS) MYRCIOIDES, S. Moore, sp. nov.

Ramuli foliati, glabri. *Folia* oblongo-lanceolata, rarius ovato-oblonga, obtusa, in petiolum brevem alatum cuneatim attenuata, margine obscure undulata, tenuiter coriacea, utrinque satis crebro nigropunctata, glabra, pleraque 8–10 cm. longa (interdum circa 6 cm.), 2–3 cm. lata. *Racemi* foliis subæquilongi, gracillimi, laxissime pauciflori; pedicelli flores longe excedentes, 7–10 mm. longi. *Calyx* breviter gamosepalus, 1·5 mm. longus; segmenta suborbicularia, 1×1·35 mm., dextrorsum obtegentia, margine serrulato-ciliata, optime punctata. *Corolla* 4–5 mm. longa, ultra medium 5-lobata; lobi ovato-oblongi, obtusissimi, crebro punctati, 2–2·5 mm. lati. *Antheræ* subsessiles, 2·5 mm. longæ, corolla breviores, apice mucronulatæ. *Ovarium* late ovoideum, stylum duplo excedens, 1·5 mm. longum.

Camp VI *a*, 3100 ft.

Leaves brown above when dry, pale green below; dots fairly evenly distributed over both surfaces; petioles flat above, rounded on the back, glabrous, less than 1 cm. in

length. Racemes with the branches patent and themselves sometimes branching so as, strictly speaking, to constitute a panicle. *Flowers* about 5 mm. in diameter.

Closely allied to the last described, but at once known from it by the foliage.

TAPEINOSPERMA PAPUANUM, S. Moore, sp. nov.

Ramuli compressiusculi, superne foliati, minute ferruginei, citissime glabri. *Folia* usque 17 × 4 cm., sæpius 12–14 × 3·5 cm., oblongo-lanceolata, apicem versus attenuata, apice late obtusa, basi in petiolum brevem coarctata obtusa, margine obscure undulata, tenuiter coriacea, pluricostata, costis fere transversalibus, supra glabra, subtus minutissime furfuracea. *Paniculæ* terminales, quam folia breviores, pauci-ramosæ, ramis ascendentibus ramulos breves apice floriferos procreantibus, minute ferrugineæ, summum 10 cm. longæ. *Pedicelli* 1–4 mm. longi. *Calyx* 1 mm. longus, alte partitus; segmenta ovata, obtuse acuta, margine integra, præsertim apicem versus paucipunctata, sæpe paullo dextrorsum obtegentia. *Corolla* breviter gamopetala, vix 3 mm. longa; lobi ovati vel late ovato-oblongi, obtusi, integri, sub apice obscure punctati, 1·5 mm. lati. *Antheræ* basi sagittulatæ, apice acutæ, corollæ lobos vix adæquantes, 1·5 mm. longæ; filamenta antheris duplo breviora. *Ovarium* subglobosum, 1 mm. longum, quam stylus crassus superne gradatim attenuatus plane brevius. *Ovula* 8, æquatoria.

Camp VI *a*, 3100 ft.

Leaves drying greenish or brownish; lateral nerves 20 and even more pairs, inserted upon the midrib at or nearly at a right angle, and, like the midrib, more prominent below; petioles stout, broadly channelled, glabrous, 5–10 mm. long. *Branches* of the panicles not more than 5 in the specimens collected, 1·5–3 cm. long, the ultimate flowering branchlets 3–6 mm. in length. *Bracts* subulate, almost 1 mm. long.

According to Mez's clavis (Pflanzenreich, Myrsin. p. 162) this runs down to the neighbourhood of *T. scrobiculatum*, Mez, and *T. wagapense*, Mez, from both of which it differs in many features.

The genus as hitherto known consists of upwards of 30 species, of which two are Australian and the rest natives of New Caledonia and the Fiji Islands.

LABISIA PUMILA, Benth. & Hook. f., Gen. Pl. ii. 645. Var. ALATA, Scheff. Myrs. Arch. Ind. 93.

Canoe Camp, 500 ft.

Distrib. Malay Peninsula and Archipelago.

EMBELIA (§ EUEMBELIA) GRACILENTA, S. Moore, sp. nov.

Ramuli sat tenues, sursum paucifoliosi, glabri. *Folia* petiolata, ovato-oblonga vel oblongo-obovata, breviter cuspidata, apice ipso obtusa, basi cuneata, chartacea, utrinque glabra et punctulis subobscuris creberrimis inspersa, plerumque 8–10 × 4–5·5 cm., raro usque ad 13 cm. longa. *Inflorescentiæ* caulem vel ramulos nonnunquam perbreves terminantes, e racemis paucis (circa 5–7) subumbellatis ascendentibus patentibusve gracillimis microscopice papillosis constantes, 4–5 cm.

longæ. *Bracteæ* parvulæ, 1 mm. longæ; pedicelli gracillimi, 2·5–3 mm. longi. *Calyx* 0·5 mm. longus, usque ad ½ divisus; segmenta oblata, obtusa vel acuta, margine microscopice crenulata, æqualiter nigro-punctata. *Petala* 4, ovato-oblonga, obtusissima, punctis paucis obsita, glabra, 2–5 mm. longa. *Stamina* ad 1 mm. supra basin petalis inserta; filamenta antheris oblongo-ovoideis plus quam duplo longiora, 1·75 mm. longa. *Ovarium* floris masculi solummodo cogniti minutum.

Camp VI *a*, 3100 ft.

Leaves drying brownish green, slightly paler below; lateral nerves 8–10 pairs, more prominent below; petioles 5–10 mm. long. *Peduncle* short (sometimes barely present) with a few small subulate scales.

This very distinct species should find a place in the genus near *E. effusa*, Mez, but in foliage and inflorescence it is very unlike that and allied species.

EMBELIA (§EUEMBELIA) PAPUANA, S. Moore, sp. nov.

Ramuli validi, circa 6 mm. diam., sub apice foliati, glabri. *Folia* approximata, subsessilia, oblongo-obovata, prope apicem cuspidato-attenuata, apice obtusa, basin versus gradatim attenuata, basi late obtusa, pergamacea, supra glabra, subtus sparsim ferrugineo-furfuraceo-papillosa, 15–18×5–6 cm. *Flores* in paniculam terminalem brevem angustam densifloram punctis glandulosis immersis onustam 3 cm. longam 2·5 cm. latam dispositi. *Bracteæ* parvulæ, 1 mm. longæ, subulatæ, pedicellis flores subsequantibus breviores. *Calyx* 1 mm. longus; segmenta circa ad ⅓ coalita, ovata, obtusissima, margine microscopice crenulata, punctis glandulosis dorso eminentibus prædita. *Petala* 4, imbricata, obovato-oblonga, obtusissima, sparsissime punctata, glabra, 2·25 mm. longa. *Stamina* prope basin petalis inserta iisque breviora; filamenta 1 mm. longa, quam antheræ quadratæ duplo longiora. *Ovarium* floris masculi subevanidum, floris fœminei ignotum.

Camp VI *b*, 3900 ft.

Leaves drying grey-green above and brown below; lateral nerves about 15 pairs, scarcely visible on the upper, inconspicuous on the lower surface; midrib broad, prominent below; petioles very broad and thick, about 5 mm. long. *Panicle* together with the flowers light brown in colour; branches stoutish, ascending; branchlets ascending or patent. The position of this is near *E. fulva*, Mez, from which it differs in too many features to render details necessary.

The genus, which extends from West Africa to the Sandwich Islands, including in its range South and Central China, is well represented in the Malay Archipelago, and has one Australian representative; hence its presence in New Guinea is only what would have been expected.

RAPANEA MEZIANA, S. Moore, sp. nov.

Planta dioica. *Ramuli* sat robusti, superne foliosi, foliorum delapsorum cicatricibus crebro onusti, glabri. *Folia* petiolis manifestis fulta, symmetrica, oblongo-oblanceolata lanceolatave, obtusa, basin versus angustata, margine integra, pluricostata,

costis subtilibus mediocriter aspectabilibus, tenuiter coriacea, obscure punctata, utrobique glabra, sæpius 5–7×1·5–2 cm. *Flores* 4-meri, in racemos brevissimos densifloros usque ad 8×10 mm. longos dispositi, breves, squamulis parvis oblatis ciliolatis punctatis dense imbricatis circa 1 mm. longis onusti; pedicelli graciles, flores plane excedentes, plerique 2–3 mm. longi. *Calyx* vix usque ad $\frac{1}{3}$ gamosepalus, 0·8 mm. longus; lobi rotundati, margine leviter crenulati, sparsissime punctati, *Corolla* calycem facile superans, 2·75 mm. longa, breviter gamopetala; lobi spathulato-oblongi, obtusissimi, margine eleganter crenulati, sparsissime punctati, 2 mm. longi. *Stamina* petalis breviora; antheræ sessiles, ovoideæ, obtusæ, 1·5 mm. longæ. *Ovarium* floris masculi minutum, floris fœminei haud visum.

Camp III, 2500 ft.

Leaves grey-green when dry, paler below; petioles 5–8 mm. long, stoutish, channelled above. *Inflorescence* globular, usually about 20–30-flowered.

Near *R. densiflora*, Mez, which, with different foliage, has 6–12-flowered inflorescences, calyx-lobes with thick dark lines, and stamens much shorter than the petals.

The plant is named as a tribute to the valuable work of Dr. Carl Mez, who monographed the Myrsinaceæ for 'Das Pflanzenreich.'

Between Camps XII and XIII (10,333–10,888 ft.) a second *Rapanea* was collected, very close to *R. papuana*, Mez, but differing from it chiefly in the somewhat larger ovate (not obovate) leaves. As is the case with the type of *R. papuana* (at Kew), Mr. Kloss's specimens are in fruit. On this account and because the specimens under notice may perhaps eventually be referred to *R. papuana*, when more is known of that species, it has been thought better to leave them unnamed.

SYMPLOCACEÆ.

(By S. Moore.)

Symplocos (§ Bobua) pusilliflora, S. Moore, sp. nov.

Frutex verisimiliter, ramis sat validis foliosis cito glabris. *Folia* majuscula, petiolata, ovato-oblonga, subito breviterque cuspidato-attenuata, apice ipso obtusa, basi obtusa, integra, coriacea, supra glabra, subtus in nervis microscopice puberula nisi omnino glabra, summum 18×7 cm. plerumque ± 12×5 cm. *Flores* parvuli, brevissime pedicellati, in paniculas axillares quam folia breviores sæpius 2·5–4 cm. longas fere a basi ramosas puberulas digesti. *Pedicelli* 0·25 mm. longi. *Bracteæ* ovatæ, obtusæ, margine ciliatæ, 1·5 mm. longæ; bracteolæ bracteis similes nisi minores. *Calycis* lobi petalis certe breviores, suborbiculares, margine ciliati, 1 mm. longi. *Petala* basi connata, ovata, obtusissima, 2 mm. longa. *Stamina* 15, pentadelphia, petalis circiter æquilonga; filamenta glabra, longiora circa 2 mm. longa, breviora 1·25 mm. longa. *Antheræ* 0·2 mm. longæ. *Ovarium* subhemisphæricum, 3-loculare, glabrum, circa 1 mm. longum. *Stylus* breviter bifidus, glaber, 0·3 mm. longus.

Camp VI *b*, 3900 ft.

Leaves yellow-green, lateral nerves 8–10 on each side of the midrib, flat or slightly

impressed above, prominent below; petioles stout, broadly channelled above, finely puberulous on the back, 1–2 cm. long. *Petals* apparently yellow.

To be inserted in the genus near *S. Stawelii*, F. Muell. The large leaves taken together with the very small flowers afford an easy means of distinguishing the species.

SYMPLOCOS (§ BOBUA) KLOSSII, S. Moore, sp. nov.

Suffrutex circiter spithameus, omnimodo glaber. *Caulis* erectus, simplex vel rariramosus, inferne nudus et cicatricibus crebris foliorum mortuorum præditus, superne foliis laxe imbricatis. *Folia* parvula, $\pm 10 \times 7$ mm., subsessilia, oblongo-obovata, obtusa, basi angustata, margine apicem versus paucidenticulata, alibi integra, coriacea, nervis paucis in pagina superiore impressis in pagina inferiore eminentibus. *Flores* in axillis solitarii, pedicellis circa 0·5 mm. longis fulti. *Bracteæ* ut bracteolæ ambitu ovato-oblongæ, obtusæ, cymbiformes, ovarium amplectentes, 2 mm. longæ. *Calycis* lobi suborbiculares, subtilissime serrulati, 2 mm. longi. *Petala* calycis lobos paullulum excedentia, basi breviter connata, ovata vel oblongo-obovata, obtusissima, 3 mm. longa. *Stamina* circa 16, obscure pentadelphia, petalis haud longiora; filamenta basi connata, glabra, longiora 2 mm., breviora 1 mm. longa. *Antheræ* ovoideæ, 0·75 mm. longæ. *Ovarium* aliquanto compressum, 3-loculare, $1 \times 1{\cdot}5$ mm.; stylus 1 mm. longus.

Camps XIII to XIV, 10,500 to 12,500 ft.

Leaves drying yellow-green, as usual with the genus; lateral nerves 2 or sometimes 3 on each side of the midrib. *Petals* yellow, longitudinally nerved. *Filaments* fleshy, especially towards the base.

Leaves almost exactly like those of *S. Englishii*, Hemsl., but flowers different in several respects, especially the corolla.

APOCYNACEÆ.

(By H. F. WERNHAM.)

WILLUGHBEIA NOVO-GUINEENSIS, Wernham, sp. nov.

Frutex glaber. *Folia* elliptico-oblonga, subcoriacea, 6–8 cm. $\times$ 2·5–3·5 cm., supra nitentia, breviter acuminata, acuta, brevissime petiolata; venæ secundariæ numerosæ, approximatæ, rectæ, angulo 75°–80° e costa centrali emergentes. *Flores* in cymulas trichotomas sæpius 3-floras alares dispositi; pedunculi ad 6–8 mm. longi, glabri, pedicellos nec semper æquantes. *Calyx* vix 2 mm. longus, $\pm$ ad medium in lobos oblongo-rotundatos divisus. *Corollæ* tubus extus glaber, subcylindricus, 6 mm. longus, ore constrictus; limbus tortus, diametro 1·5 mm.

Camps VIII to IX, 4989 to 5875 ft.

Characterised especially by the very slender, almost filamentous branches of the few-flowered inflorescence.

ALYXIA RIDLEYANA, Wernham, sp. nov.

Ramuli teretes, striati, novelli minute pulverulento-puberuli. *Folia* coriacea, 3–4-natim verticillata, elliptica, glabra, brevissime obtuse acuminata, basi rotundata, brevissime

petiolata, 6–9 cm. × 3·5–6 cm. *Flores* albi, in cymas paniculatas laxas amplas polychotomas dispositi, axillares; pedunculi ad 7 cm. longi vel longiores, cum inflorescentiæ ramulis minute puberuli et rugosuli; pedicelli ± 2·5 mm. longi, alato-costati, cum calyce campanulato minute puberuli. *Calyx* 2 mm. longus, infra medium in lobos 5 lanceolatos subacutos divisus. *Corollæ* extus subglabræ tubus prope medium ampliatus, ± 2·5 mm. longus; lobi anguste ovati, acuti, patentes, vix 0·8 mm. longi. *Fructus* moniliformis, glaber, sectio quoque ellipsoidea, ca. 1·5 cm. longa, diametro 1 cm.

Camps I to III, 500 to 2500 ft.

Related to *A. acuminata*, K. Schum., but readily distinguished by the large paniculate inflorescence. Fruit "yellowish olive-green" (*Kloss*).

Lyonsia mollissima, Wernham, sp. nov.

Frutex scandens; caulis teres, dense hispidulo-pubescens. *Folia* ternatim verticillata, subcoriacea, obovato-lanceolata vel elliptica, 3·5–7 cm. × 1·3–2·5 cm., brevissime acuminata, obtusa, basi cuneata, margine fortiter revoluta, utrinque (subtus præsertim in venis) hispidula, supra nitentia; venæ subtus conspicuæ, secundariæ utrinque 3–4; petiolus hispidulus, ± 8–15 mm. longus. *Cymæ* axillares, folia demum multo excedentes, laxæ, hispidulo-pubescentes; pedunculus ad ca. 3–5 cm. longus; pedicelli ± 1·9 mm. longi. *Calycis* hispiduli lobi lineari-lanceolati, ± 1·5 mm. longi, patule-revoluti, tubum excedentes. *Corollæ* albæ extus eodem indumento ut calyx indutæ tubus suburceolatus, 3 mm. longus; lobi lanceolati, sinuato-patentes, subacuti, 2 mm. longi. *Antheræ* 3·5 mm. longæ, basi inter lobos obtuse appendiculatæ, nitentes, apicibus exsertis.

Camps I to III, 500 to 2500 ft.

Characterised by the whorled leaves and the dense pubescence.

Lyonsia sanguinea, Wernham, sp. nov.

Folia membranacea, elliptica, basi obtusa, acuminata, acuta, ± 8 cm. × 3 cm., utrinque glabra; venæ secundariæ subtus valde conspicuæ, tamen tenues, cum reticulatione translucide sanguineæ; petiolus glaber, 2 cm. longus. *Inflorescentiæ* divaricatim dibrachiatæ; pedunculus ad 10 cm. longus vel longior, gracillimus, ut rami primarii ± 2·5 cm. longi. *Flores* in cymulas laxas parvas paucifloras dispositi; pedicelli graciles, ad ca. 5 mm. longi, rufo-strigillosi. *Calycis* lobi obtuse ovato-lanceolati, parvi. *Corolla* extus insuper strigosa, desuper glabra; tubus 4–4·5 mm. longus, intus in staminum regione basique loborum pilis latiusculis candidis rigide deflexis instructus; lobi oblongi, obtusi, suberecti, 2·5 mm. longi. *Antheræ* 3·2 mm. longæ.

Camp III, 2500 ft.

Distinguished by the venation, the long slender peduncles, etc.; "blood-red" (*Kloss*).

Lyonsia Wollastonii, Wernham, sp. nov.

Frutex volubilis, glaber; ramuli gracillimi, striato-teretes. *Folia* firme chartacea, opposita, elliptico-oblonga, subcaudato-acuminata, apice subacuta, basi acuta, margine

siccitate quidem valde revoluta, ca. 10 cm. × 3·3 cm., utrinque glabra; venæ secundariæ costæ centrali fere perpendiculares, plures, hebetiusculæ; petiolus tenuis, 1–2 cm. longus, nonnunquam longior. *Inflorescentia* ab apice pedunculi ± 5 cm. longi 3-brachiata; brachia primaria sinuata, glabra, 3–4 cm. longa; cymulæ laxi- necnon pauci-floræ. Pedicelli ± 5 mm. longi, cum calyce appresse hirtelli. *Calyx* 2 mm. longus, fere ad medium in lobos 5 triangulares latos divisus. *Corollæ* suburceolata, extus squamoso-pubescens; tubus 3·1 mm. longus; lobi lanceolati, suberecti, subacuti, ca. 2·3 mm. longi.

Camps I to III, and VI *b*, 500 to 2500 and 3900 ft.

"Flowers pale mauve" (*Kloss*).

NEOWOLLASTONIA, Wernham. Apocynacearum e tribu Plumeriearum novum genus.

Calyx ad basin 5-partitus, glandulosus; lobi obtusi, imbricati. *Corollæ* hypocrateriformis tubus rectus, subcylindricus, ad stamina vel insuper parum dilatatus, intus in staminum regione pilosus; lobi valde oblique contorti, sinistrorsum obtegentes. *Stamina* infra tubi medium inserta; antheræ sagittatæ, acutissimæ, basi bilobæ, nec appendiculatæ. *Discus* obsoletus. *Ovarium* integerrimum, biloculare, insuper in stylum brevem angustatum; stigma fusiforme; ovula in loculis numerosa. *Fructus* . . . . *Folia* opposita, pennivenia, lineis prominulis interpetiolaribus nonnunquam connata.

In the absence of the fruit the actual affinity must remain in some doubt. The plant strongly recalls *Ervatamia*; but the syncarpous ovary, as in the case of the allied *Tabernanthe*, excludes it from this genus. Further distinction lies in the absence of intracalycular glands, and in the peculiar corolla-lobes. On the whole it would seem proper to include this genus as a somewhat abnormal member of the *Plumerieæ*, sub-tribe *Tabernæmontaneæ*, on the grounds of general facies, interpetiolar line, etc.

NEOWOLLASTONIA TABERNÆMONTANOIDES, Wernham, sp. unic.

Planta præter inflorescentiam glabra; ramuli striati, complanati. *Folia* firme chartacea, oblonga, 14–18 cm. × 4·5–5·8 cm., breviuscule obtuse acuminata; petiolus 5 mm. longus, supra alte canaliculatus; venæ secundariæ utrinque prominulæ, utrinque ± 15 tenuioribus intervenientibus. *Inflorescentia* terminalis, a basi 2–3-brachiata, primo densiuscula, tardius laxior; rami costato-striati, angulati, minutissime pulverulenti. *Calycis* segmenta ovata, rotundata, sparse minute ciliata, aliter glabra, 3 mm. longa. *Corollæ* tubus extus minute griseo-pubescens, 1·7 cm. longus, insuper parum ampliatus, intus infra staminam insertionem pilis deflexis instructus, in staminum regione per 1·5 mm. puberulus, insuper glabrescens; lobi oblique quadrati, torti, acuminati, acuti, limbum 2 cm. diam. formantes. *Stamina* 5 mm. supra tubi basin inserta; filamenta brevia, lata, complanata, basi pilosa; antheræ 2·7 mm. longæ. *Ovarium* 2 mm. longum, glabrum; stylus cum stigmate 4 mm. longus.

Camp VI *c*, at 5500 ft.

LOGANIACEÆ.

(By H. F. Wernham.)

Fagræa Bodenii, Wernham, sp. nov.

Planta glabra; ramuli obtuse angulati. *Folia* coriacea, obovata, ± 11 cm. × 5 cm., brevissime late et obtuse acuminata, basi cuneata; petiolus ad 1·5 cm. longus, cum stipulis 2 crassis rotundato-tumidis 5 mm. longis in pulvino bifido; venæ subtus, nisi centralis prominens, celatæ, supra obscuræ, tenues, impressulæ, utrinque ca. 6–8. *Flores* in cymam glabram paucifloram trichotomam dispositi; bracteæ coriaceæ, obtusæ, plus minus connatæ, inferiores foliaceæ; pedicelli validi, ± 1·5 cm. longi. *Calyx* ovoideus, ca. 1·4 cm. longus, diametro 8 mm.; lobi oblongo-rotundati vel apice truncati, 4–6 mm. longi. *Corolla* majuscula, glabra, plus minus tubularis vel anguste infundibularis. *Fructus* fusiformis, acuminatus, acutissimus, basi brevissime angustatus, nitidus, 4 cm. longus, diametro 2·2 cm.

Camp VI *c*, at 5500 ft.

Related to *F. crassifolia*, Blume; readily distinguished by the sharply pointed shining fruits.

Fagræa carstensensis, Wernham, sp. nov.

Arbor glaberrima; ramuli validi. *Folia* subcoriacea, magna, obovata, basin versus oblonga, subauriculata, sessilia, apice brevissime (± 8 mm.) obtuse cuspidata, 25–35 cm. × 14–17 cm.; vena centralis subtus desuper basin versus valde prominens, dorso acute carinata, secundariæ tenues, prominulæ, utrinque 10–12. *Stipulæ* in alas intra-axillares oblongas truncatas ca. 1·8 cm. longas 1·5 cm. latas coriaceas connatæ. *Flores* in fasciculis sessilibus subsessiles, pedicellis validissimis confertis; bracteæ concavæ, oblongæ, apice rotundatæ. *Calyx* subcylindricus; lobi ovato-oblongi, obtusissimi, ± 1·8 cm. longi, 1·6 cm. lati. *Corolla* extus glabra; tubus insuper ampliatus, ca. 3·3 cm. longus, in ore 1·7 cm. latus; lobi obovati, brevissime apiculati, ca. 1·7 cm. × 1·2 cm. *Antheræ* anguste ellipsoideæ, 6 mm. longæ, vix exsertæ.

Camp I, at ± 700 ft.

Allied probably to *F. Woodiana*, F. Muell., but the leaves and flowers are sessile and the corolla more funnel-shaped. The leaves are shaped similarly to those of *Guettarda speciosa*.

Fagræa gardeniæflora, Wernham, sp. nov.

Arbor glabra; ramuli sat graciles, teretes. *Folia* carnosulo-chartacea, elliptica, ± 12 cm. × 4·3 cm., acuminata, acutissima, basi angustata; venæ, nisi centralis subtus basin versus prominens supra prominula, omnino celatæ; petiolus ± 1 cm. longus. *Flores* sessiles (omnes ?). *Calyx* ovoideus, fere 2·5 cm. × 1·7 cm. *Corolla* infundibularis, ore fere 2 cm. lata; tubus 2·7 cm. longus; lobi ovati, rotundati, 1·2 cm. × 1 cm. *Antheræ* sublineares, 8 mm. longæ, vix exsertæ.

Camp VI *b*, 3900 ft.

This resembles *F. lanceolata*, Blume, in the vegetative parts; but is distinguished by the flowers.

ASCLEPIADEÆ.

(By S. Moore.)

Marsdenia Klossii, S. Moore, sp. nov.

Frutex scandens. *Caulis* subteres, longitrorsum pluristriatus, distanter foliosus, sparsim puberulus. *Folia* petiolata, cordato-ovata, apicem versus subito cuspidato-acuminata, apice obtusa, membranacea, in nervis paginæ utriusvis subtiliter pubescentia puberulave, ceterum glabra, summum 14 × 10 cm. sæpe 9 × 6 cm., petiolis 4–6 cm. longis. *Cymæ* axillares, pedunculatæ, pedunculo circa 1 cm. longo, ramosæ, plurifloræ, minute fulvo-pubescentes, 5 × 4 cm. *Flores* pedicellati, pedicellis breviores. *Calycis* segmenta suborbicularia, obtusissima, corollæ tubum medium excedentia, extus minute pubescentia, 2·2 × 2·2 mm. *Corolla* urceolata, triente superiore fissa, 4 mm. diam.; lobi triangulari-deltoidei, obtusiusculi, incrassati, 1·5 mm. longi. *Coronæ* phylla gynostegio breviora, oblonga, erecta, apice libera, obtusa, crassiuscula, basi dilatata, circa 1 mm. longa. *Antherarum* appendices rotundatæ, stigmati applicatæ. *Pollinia* oblongo-pyriformia, caudiculis brevibus glandulæ parvæ anguste rhomboideæ adjuncta; stigma brevissime exsertum, convexum.

Canoe Camp, 500 ft.

Cymes with very flexuous branches. *Bracts* linear, ± 5 mm. long. Flowers brownish red, on pedicels 5 mm. long or sometimes less. *Gynostegium* rather more than 2 mm. long. *Pollinia* 0·5 mm., gland 0·2 mm. long. *Marsdenia papuana*, Schlechter, to which this is evidently allied, is described as having smaller leaves softly pubescent above and villous-hairy below, villous inflorescences, flowers with a smaller densely villous calyx, a corolla 3 mm. long, and a shorter gynostegium.

Stephanotis, sp. nov. A small fragment consisting of a piece of a slender stem, a sparsely pubescent peduncle 5·5 cm. in length, and three flowers on filiform pedicels rather more than 1 cm. long. The segments of the calyx are 2 mm. long, and linear lanceolate. The pale primrose corolla is 18 mm. long, with a 6 mm. long tube and broadly linear reflexed lobes which are 12 mm. long.

Camp III, 2500 ft.

Schlechter has described (under *Marsdenia*) two Papuan species of this genus, both entirely different from the one under notice.

Hoya (§ Eu-Hoya) Schlechteriana, S. Moore, sp. nov.

Rami scandentes, sparsim ramulosi, distanter foliosi, radicantes. *Folia* petiolata, elliptica, sursum obtuse caudato-acuminata, basi obtusa, carnosa-coriacea, utrobique glabra, 10–11 × 3·8–4·5 cm. *Umbellæ* verisimiliter plurifloræ, pedunculis ramis fere æquilatis quam folia brevioribus glabris fere 6·5 cm. longis insidentes. *Pedicelli* filiformes, floribus plane longiores, circa 2 cm. longis. *Calyx* parvulus, glaber;

segmenta triangulari-deltoidea, obtusa, circa 1 mm. longa. *Corolla* pro rata submediocris, rotata, tubo 2·5 mm. longo, paullo ultra medium divisa, extus et prope basin intus glabra; lobi deltoidei, acuti, extus glabri, intus præsertim margines versus subtiliter pubescentes, 3·5 mm. longi. *Corona* crassiuscula; phylla horizontalia, apice truncata gynostegioque incumbentia, superne oblonga, medio plana, postice rotundato-truncata, 2·5 cm. longa, lateribus oblongis crassiusculis. *Pollinia* oblongo-pyriformia, obtusa; glandula minuta, caudiculis æquilonga.

Camps III to IV, 2100 to 2500 ft.

Leaves apparently pale green in the fresh state, much discoloured when dry and sometimes almost white, nervation indistinct on either side; petioles 8–10 mm. long, somewhat fleshy, channelled and microscopically puberulous on the upper side. *Flowers* rather more than 1 cm. in diameter when expanded. *Leaves of corona* reaching, when the corolla is pressed out, almost to the sinuses of the lobes. *Pollinia* 3 mm., gland 0·1 mm. long.

This is evidently near *H. chloroleuca*, Schlechter, judging from the description in Engler, Jahrb. l. (1913) p. 121, the leaves and the corona being the chief points of difference. Named in compliment to Dr. Schlechter, who has done such valuable work, both as collector and author, upon the Papuan flora.

The material consists of a shoot bearing leaves and a single peduncle from which the flowers have become detached. In a capsule accompanying these are 13 flowers, all seemingly derived from the single inflorescence secured.

Hoya (§ Eu-Hoya) lanceolaria, S. Moore, sp. nov.

Planta verisimiliter scandens. *Rami* tenues, distanter foliosi, glabri. *Folia* breviter petiolata, ovato-oblonga, superne caudato-attenuata, apice obtusa, basi obtusa breviterve rotundata, perspicue nervosa, carnoso-coriacea, pagina utraque glabra, 5·5–7·5 × 1·3–2·9 cm. *Pedunculus* foliis brevior, microscopice puberulus, 3 cm. longus, pedicellis gracilibus longior. *Calycis* parvuli fere omnino glabri segmenta ovato-oblonga, obtusa, 1 mm. longa. *Corolla* mediocris (circa 18 mm. diam.) rotata, usque ad $\frac{2}{3}$ divisa; lobi rhombeo-ovati, acutiusculi, 6 mm. longi, præsertim versus margines subtiliter puberuli. *Coronæ* phylla 2 mm. longa, tenuiter crassiuscula, horizontalia, apice ovata, ascendentia, gynostegio incumbentia, superne ovata, medio concava, postice rotundata, lateribus rotundatis crassiusculis. *Pollinia* oblongo-pyriformia, apice truncata; glandula rhombea quam caudiculæ maxime abbreviatæ duplo longior.

Camps VII to VIII, 3600 to 4900 ft.

Leaves somewhat shiny, when dry grey-green above and pale brown below, midrib mpressed above, very prominent on the underside, side-nerves and open reticulum especially plain upon the upper surface; petioles 5–6 mm. long, excavated in the middle alone, glabrous. *Pollinia* 0·45 mm., caudicles barely 0·1 mm., gland about 0·2 mm. long.

From the description, *H. exilis*, Schlechter, is probably nearest to this; but its larger leaves are of thinner texture, the peduncles twice as long or nearly so, the somewhat larger corollas having glabrous lobes, and its coronal leaves a different shape.

The material consists of a piece of stem 20 cm. long, bearing two pairs of leaves and one peduncle. In a capsule are 9 flowers.

HOYA (§ EU-HOYA) KLOSSII, S. Moore, sp. nov.

Caulis volubilis, distanter foliosus, glaber. *Folia* brevipetiolata, ovata, longiuscule caudato-acuminata, apice obtusa, subrotundata, margine recurva, coriacea, glabra, pagina utravis nitentia et (præsertim in pagina superiore) prominenter reticulato-nervosa, 4–6×1·5–2·5 cm. *Flores* inter minores; umbellæ verisimiliter circa 6-floræ, pedunculo glabro foliis breviore 23–25 mm. longo insidentes; pedicelli filiformes, quam flores manifeste longiores, 18–20 mm. longi. *Calycis* segmenta parvula, ovata, obtusa, glabra, 1 mm. longa. *Corolla* rotata, usque ad $\frac{3}{4}$ divisa, crassiuscula, extus leviter piloso-puberula, intus omnimodo puberula; lobi triangulari-rhombei, acuti, vivi verisimiliter recurvi, 6 mm. longi. *Coronæ* phylla 2 mm. longa, radiatim patentia, apice ipso ascendentia, obtusa, superne elliptica, medio late concava, extus obtusissima, lateribus rotundis, crassiuscula. *Pollinia* oblongo-pyriformia, retinaculis perbrevibus glandulæ parvulæ lineari adjuncta.

Camp VI *b*, 3900 ft.

Stems somewhat angular, so far as the material shows, unbranched, about 1·5 mm. in diameter. *Leaves* brownish green when dry; reticulum very open; petioles stoutish, slightly puberulous, 3–4 mm. long. *Flowers* when expanded rather more than 1 cm. in diameter. *Pollinia* 0·6 mm. long, gland barely $\frac{1}{3}$ as long.

Apparently the place of this is near *H. exilis*, Schlechter, which has dissimilar leaves, much longer peduncles, and flowers in several respects different.

HOYA (§ PHYSOSTELMA) APODA, S. Moore, sp. nov.

Planta scandens, frequenter ramosa. Rami hac atque illac radicantes, sat bene foliosi, glabri. *Folia* breviter petiolata, ovato-oblonga, sursum caudato-acuminata, apice obtusa, basi subrotundata, tenuiter coriacea, glabra, sæpissime 8–10 cm. longa, 4–4·5 cm. lata. *Umbellæ* sessiles, oliganthæ. *Pedicelli* filiformes, floribus certe longiores, glabri, circa 2 cm. longi. *Calycis* segmenta oblongo-ovata, obtusa, glabra, 1 mm. longa. *Corolla* ad normam generis mediocris, pansa fere 20 mm. diam., late campanulata, ad quartam partem 5-loba, utrinque glabra; lobi triangulari-deltoidei, obtusiusculi, 4 mm. longi. *Coronæ* phylla carnosa, paullum ascendentia (vix horizontalia), apice erecta, superne elliptica, medio concava, extus obtusa, fere 3 mm. longa, lateribus late oblongis crassiusculis. *Pollinia* ambitu oblonga, utrinque obtusa; caudiculæ subnullæ; glandula oblonga.

Canoe Camp, 500 ft.

A scandent shrub or a subshrub, the freely-produced comparatively slender branches occasionally putting out one or more longish, very slender, wiry, seldom-branching rootlets. *Leaves* very pale when dry, particularly on the under side; midrib impressed on the upper, prominent on the lower side; nervation more prominent on the upper

than on the lower side; reticulum moderately close; petioles stout, deeply channelled above, microscopically puberulous, 3–5 mm. long. *Flowers* yellowish white with the under side tinged with red and a dull purple centre. *Pollinia* 0·4 mm., gland 0·15 mm. long.

To be inserted in the genus near *H. papuana*, Schlechter, which has differently shaped leaves and flowers with a larger calyx, a larger rose-red corolla, and somewhat diverse corona. The flowers are all detached, so that it is impossible to say how many of them go to the umbel.

HOYA (§ PLOCOSTEMMA) LEUCANTHA, S. Moore, sp. nov.

Rami gracillimi, bene foliosi, puberuli, deinde glabrescentes. *Folia* inter minora, breviter petiolata, lanceolata, acuminata, basi obtusa leviterve rotundata, margine recurva, coriacea, utrobique glabra, 3·5–4·5 cm. longa, juxta basin 8–10 mm. lata. *Umbellæ* circa 20-floræ; pedunculus gracilis, foliis brevior, puberulus, ægre 20 mm. longus; pedicelli pedunculo subæquilongi (17 mm. longi), vix omnino glabri. *Flores* parvi, albi. *Calycis* segmenta oblongo-ovata, obtusa, extus microscopice puberula, 1 mm. longa. *Corolla* rotata, glabra, 6 mm. diam., segmenta pansa verisimiliter recurva, ultra medium divisa; lobi ovati, acuti, glabri. *Coronæ* phylla parvula, gynostegio multo breviore, 0·5 mm. longa, ascendentia, a latere compressa, postice (externe) obtusa, tenuiter crassiuscula. *Antherarum* appendices prominentes, ovatæ, erectæ. *Pollinia* oblonga, obtusa; glandula suborbicularis, minuta.

Canoe Camp, 500 ft.

Branches rigid though slender, 1–1·5 mm. in diameter. *Leaves* grey-green when dry, paler below, nervation very plain on the upper, less so on the lower side; petioles slender, 2–3 mm. long, puberulous. *Corona* with the tips of its leaves about 1·5 mm. below the tips of the anthers. *Pollinia* 0·4 mm. long, gland about 0·08 mm. in diameter.

After much thought it appears that this and the following species must be referred to the § *Plocostemma*, although very small flowers are an unusual feature of the section. In both cases buds only are present, though just about to open; hence it cannot be said definitely that the corolla-lobes are reflexed.

HOYA (§ PLOCOSTEMMA) PUSILLIFLORA, S. Moore, sp. nov.

Rami scandentes, volubiles, graciles. *Folia* breviter petiolata, lanceolata vel lanceolato-ovata, longiuscule cuspidato-acuminata, apice obtusa, basi rotundata nisi late obtusa, margine recurva, pergamacea, utrinsecus glabra, usque ad 6–7 cm. longa, 18–24 mm. lata. *Umbellæ* circa 20-floræ. *Pedunculi* gracillimi, foliis summis fere æquilongi, circa 4 cm. longi. *Pedicelli* pedunculis multo breviores, filiformes, glabri, 1 cm. longi. *Calycis* parvuli segmenta ovato-oblonga, obtusa, dorso microscopice puberula, 0·75 mm. longa. *Corolla* parva, ægre 5 mm. diam. *Coronæ* phylla a gynostegio breviter superata, ascendentia, a latere compressa, antice (interne) obtusa, postice obtusa, tenuiter crassiuscula. *Antherarum* appendices abbreviatæ. *Pollinia* oblonga; glandula linearis, minuta.

Camp I, 500 ft.

Leaves drying pale greenish grey, nervation well marked on the upper side, less clear on the lower; petioles 2–3 mm. long, stoutish, channelled above, glabrous. Segments of *calyx* 0·75 mm. long. *Corollas* barely 5 mm. across, the undivided part 0·5 mm., the lobes 2·5 mm. long. *Pollinia* 0·3 mm., gland about 0·1 mm. long.

Allied to the last, but unlike it by reason of the broader, thinner leaves and the long and very slender peduncles, the smaller flowers, the corona reaching nearly to the top of the gynostegium, and the short appendages to the anthers.

HOYA (§ PHYSOSTELMA) OXYCOCCOIDES, S. Moore, sp. nov.

Caulis volubilis, tenuis, subdistanter foliosus, puberulus. *Folia* parvula, petiolata, obovata, nonnunquam fere suborbicularia, rotundata, apice mucronata, basi breviter cuneatim angustata, margine recurva, coriacea, supra optime reticulata, utrinque glabra, 12–18×7–9 mm. *Umbellæ* circa 6-floræ, pedunculis gracilibus puberulis folia longe excedentibus 5–6 cm. longis fultæ; pedicelli pedunculis breviores, glabri, circa 2 cm. longi. *Calycis* segmenta parva, oblongo-ovata, obtusa, ciliolata, 1·5 mm. longa. *Corolla* paullulum ultra medium lobata, 2 cm. diam.; lobi deltoideo-ovati, obtusi, intus margine dense pubescentes, ceteroquin glabri, 6 mm. longi. *Coronæ* phylla crassa, subhorizontalia (sc. breviter ascendentia), apice (interne) erecta, acuta, superne obovata, medio concava, postice obtusissima, lateribus rotundatis, crassiusculis. *Pollinia* oblonga, obtusa; glandula oblonga, caudiculis circiter æquilonga.

Camps III to VIII, 2500 to 4900 ft.

Leaves bright green and faintly shining above when dry, opaque and pale below; petioles 3–5 mm. long, puberulous. *Pollinia* 0·5 mm., gland 0·15 mm. long.

This is evidently closely allied to *H. microphylla*, Schlechter and *H. pulchella*, Schlechter, as Schlechter's figure and descriptions show, but it has certain points of difference which seem to prevent its being considered conspecific with either; these differences are shown in the accompanying table. As Schlechter observes, the leaves of these and one or two other species greatly resemble those of *Dischidia*.

	Leaves.	Peduncles.	Corolla.	Corona.
H. microphylla	Coriaceous, ovate, obtusiusculous.	3 cm. long.	2 cm. across, the lobes very minutely puberulous towards the margin.	Lobes oval seen from above, scarcely exceeding 2 mm. in the radial direction.
H. pulchella	Subcoriaceous, ovate, obtuse.	4·5–8 cm. long.	2·5 cm. across, densely puberulous towards the margin.	Lobes broadly obovate, 2·5 mm. in the radial direction.
H. oxycoccoides	Coriaceous, more or less obovate, sometimes nearly orbicular, rotundate distally.	5–6 cm. long.	2 cm. across, densely hairy along the margin.	Lobes obovate, 3 mm. in the radial direction.

GENTIANACEÆ.

(By H. F. Wernham.)

Gentiana carinicostata, Wernham, sp. nov.

Species inter minimas; caulis pars erecta vix ad 4 cm. alta, minute squamato-pubescens. *Folia* dense conferta, imbricato-decussata, coriacea, obovata vel suborbicularia minute apiculata, margine fortiter revoluta, 3·5 mm. × 3 mm., sessilia, supra minute asperulo-papillosa, basin versus minute ciliata, aliter glabra; venæ celatæ nisi centralis subtus cariniformiter prominens. *Flores* glabri, in caulium erectorum apicibus solitarii. *Calycis* lobi oblongo-lanceolati, acuti, 3·3 mm. longi; tubus in juventute purpureo-roseus, 6·3 mm. longus. *Corolla* siccitate nigra, fere tubulosa, e calycis tubo 6 mm. exserta; lobi ca. 3·7 mm. longi, ovati, acuti nec vix acuminati. *Genitalia* inclusa.

Camps XI to XIII, 7956 to 10,333 ft.

Distinguished by the small thick leaves with strongly revolute margins and very prominent dorsal midrib, and the pubescent stem.

Gentiana saginifolia, Wernham, sp. nov.

Herba debilis, glabra, 12 cm. longa nec ramosa. *Folia* anguste lanceolata, 5–7·5 mm. longa, basi brevissime vaginatim connata, sæpius plus minus involuta, hyalino-apiculata, dorso interdum hic inde albido-papillosa, demum decurvato-patentia. *Flores* solitarii, terminales. *Calycis* tubus 6 mm. longus; lobi lanceolati, foliis similes, 5 mm. longi. *Corolla* tubularis, glabra; tubus ca. 9 mm. longus; limbus fere 1 cm. diam.

Camps III to VIII, 2500 to 4900 ft.

Near *G. Wollastonii* (*vide infra*), but the leaves are longer and more glossy in aspect, and the dimensions of calyx and corolla are different.

Gentiana Vandewateri, Wernham, sp. nov.

Herba simplex, parva, glabra, nitens; caulis ascendens, gracilis, debilis, angulatus. *Folia* densiuscule conferta, subhyalina, chartacea, lanceolata, acuta nec apiculata, margine minutissime irregulariter puberulo-ciliata, ad 4 mm. longa, ca. 1 mm. lata, sessilia, subamplexicaulia vel basi in vaginam brevem connata, venis celatis. *Flores* solitarii, terminales, sessiles. *Calycis* glaberrimi subhyalini anguste infundibularis tubus pallidus, 4·5 mm. longus; lobi lineari-triangulares, acuti, 2·7 mm. longi. *Corollæ* extus glabræ tubus cylindrico-infundibularis, 9 mm. longus; lobi quadrangulares, patentes, apice emarginato, limbum 9 mm. diam. formantes. *Stamina* 2–2·5 mm. exserta; antheræ ca. 1·4 mm. longæ. *Stylus* complanatus, insuper sensim parum ampliatus, 3·3 mm. exsertus.

Camps VI *c*, IX, X, XI, 5500 to 7956 ft.

Distinguished by the very small shining leaves and relatively large flowers with broad emarginate corolla-lobes.

GENTIANA WOLLASTONII, Wernham, sp. nov.

Herba parva, glabra, a basi nonnunquam ramosa et procumbens; caulis subhyalinus, alato-angularis. *Folia* crassiuscula, dense conferta, latiuscule lanceolata, nitentia, ad 5–6 mm. × 1·5 mm., involuta, dorso costata, apice hyalino-apiculata, basi amplexicaulia, vix connata. *Flores* solitarii, terminales, omnino glabri. *Calycis* lobi lineares, brevissime hyalino-apiculati, dorso unicostati, 3·5–4 mm. longi, in tubum subhyalinum 5-costatum 7 mm. longum decurrentes. *Corollæ* tubus cylindricus, ca. 8 mm. longus; lobi quadrangulares, apice oblique bilobati, limbum 7 mm. in diam. formantes.

Camp XIII, at 10,333 ft.

Related possibly to *G. lycopodioides*, Stapf, from a similar altitude on Mt. Kinabalu, but distinct in the much smaller and narrower leaves and flowers.

BORAGINACEÆ.
(By H. F. WERNHAM.)

TOURNEFORTIA SARMENTOSA, Lam. Illustr. i. 416.

Locality not given.

Distrib. Tropical Asia and Australia, and Mascarene Isles.

ECHINOSPERMUM JAVANICUM, Lehm. Asperif. 118.

Locality not given.

Distrib. Java.

LITHOSPERMUM MINUTUM, Wernham, sp. nov.

Herba humilis, 3 cm. alta; caulis simplex vel sparse ramosus. *Folia* dense imbricatim conferta, amplexicaulia, linearia, 9 mm. longa, basin versus lanceolata, minute ciliata. *Flores* solitarii, caulem terminantes, folia vix excedentes; pedicellus strigosus, ± 3·5 mm. longus. *Calycis* lobi lanceolati, acuminati, ciliati, aliter glabri, 3 mm. longi. *Corollæ* omnino glabræ tubus 2 mm. longus; lobi rotundati ca. 2·5 mm. × 2·3 mm., intus basi squama pulviniformi onusti.

Camps XIII to XIV, 10,500 to 12,500 ft.

Remarkable for its small size, its narrow, almost glabrous leaves, and its solitary flowers.

CONVOLVULACEÆ.
(By H. F. WERNHAM.)

ERYCIBE PAPUANA, Wernham, sp. nov.

Frutex ramulis rugoso-angulatis novellis striatis glabris. *Folia* coriacea, elliptica, 10–13 cm. × 4·8–6·5 cm., parum acuminata, obtusissima, basi rotundata, glaberrima; petiolus validus, vix ad 1 cm. longus. *Panicula* axillaris, ad 9 cm. longa vel longior, obscuriuscule appresse pilosa. *Calycis* lobi 5, ovati, imbricati, appresse pilosi. *Corolla* ca. 5 mm. longa, fere ad basin in lobos 5 obtusos extus rufo-

sericeos divisa. *Staminum* 5 filamenta tenuia, 1 mm. longa; antheræ conoideæ, 4-pteræ, apiculatæ. *Ovarium* subglobosum. *Stigma* conoideum, 5-costatum.

Canoe Camp, 150 ft.

Allied to *E. Hellwigii*, Prain, but the leaves are much larger and differently shaped. Flowers pale yellow (*Kloss*).

SOLANACEÆ.

(By H. F. Wernham.)

Solanum aviculare, Forst. f. Prod. 18.

Camps VIII to IX, 4900 to 5500 ft.

Distrib. Australia, New Zealand, and Polynesia.

Solanum indicum, Linn. Sp. Pl. 187.

Camps IX to X, 5500 to 6700 ft.

Distrib. Throughout the tropics of the Old World.

Solanum nodiflorum, Jacq. Ic. Pl. Rar. ii. 288, t. 326.

Camp VI *b*, 3900 ft.

Distrib. Cosmopolitan in the tropics.

Solanum torvum, Sw. Prod. Veg. Ind. Occ. 47.

Camps III to VI, 2100 to 2500 ft.

Distrib. Cosmopolitan in the tropics.

Solanum peranomalum, Wernham, sp. nov.

Frutex ramis florentibus validiusculis teretibus novellis complanatis glabris. *Folia* glabra, chartacea, integerrima, per paria approximata, opposita valde inæqualia; majora oblonga, breviter acuminata, acuta, basi sæpius obliqua, 11–13 cm. × 4·5–5·3 cm., petiolo lignoso 1 cm. longo, venis subtus prominentibus secundariis utrinque 8–9; minora suborbicularia, 9 mm. diam. basi cordata, subsessilia. *Flores* numerosi, e pulvillo ad foliorum basi sito orti; pedicelli tenues, ut calyces sparse rufo-hirtelli ±8 mm. longi. *Calyx* cupularis, limbo integerrimo, 2·5 mm. longus. *Corolla* vix 4 mm. longa, fere ad basin in lacinias oblongo-lanceolatas divisa, glabra.

Canoe Camp, 150 ft.

The very woody habit, sessile cauliflorous inflorescences, and blunt ellipsoidal buds make this plant have little resemblance to a *Solanum*; it recalls rather *Brachistus*. The nearest allied species is *S. Kaernbachii*, Laut. & K. Schum., which is readily distinguished by the indumentum. Our species is practically glabrous.

Solanum Ridleyanum, Wernham, sp. nov.

Frutex præter ramulos novellos graciles minute pubescentes glaber. *Folia* coriacea, per paria plerumque approximata; majora oblonga, breviter subacute acuminata, 7·5–15 cm. × 2·5–4 cm., basi obtusa, petiolo lignoso ad 1 cm. longo, venis subtus

prominentibus, utrinque ca. 8–11; minora ovata vel suborbicularia, breviter acuminata, subacuta, basi cordata, ad ca. 1·5 cm. × 1 cm., brevissime petiolata. *Flores* pauci, in pulvillis infra folia dispositi; pedicelli graciles, insuper sensim dilatati, glabri, ± 8 mm. longi. *Calyx* integer, truncatus, 3 mm. longus, glaber. *Corolla* glabra, fere ad basin in lacinias lanceolatas obtusas 4 mm. longas divisa.

Camps III to IV, 1100 to 2500 ft.

Allied to the previous species, but the flowers are typical of *Solanum* and much larger. Mr. Ridley first drew my attention to this species; it is described by the collector as having flowers "pale violet, darker at base."

Solanum Wollastonii, Wernham, sp. nov.

Frutex epiphyticus, omnino glaber; ramuli novelli gracillimi. *Folia* chartacea, alterna vel per paria approximata, quorum unum oblongum vel ellipticum, 9–11 cm. × 2·5–3·8 cm., caudato-acuminatum, apice obtusissimum, basi sæpius obliquum, petiolo 5 mm. longo, alterum suborbiculare, ad 1·8 cm. × 1·5 cm., brevissime petiolatum. *Flores* singuli vel bini, infra folia orti, pedicellis basi tenuissimis insuper sensim incrassatis ± 2 cm. longis. *Calyx* campanulatus, dentibus 5, 3 mm. longus. *Corolla* glabra, fere ad basin in lacinias 5 anguste oblongas 1 cm. × 2 mm. divisa. *Staminorum* filamenta brevia, plana; antheræ ol longæ, 8 mm. longæ. *Ovarium* globosum; stylus crassus, stigmate clavato.

Camps VIII ? to IX, 4900 to 5500 ft.

Another remarkable woody species with subsolitary flowers on long slender pedicels. Allied to the previous species, but distinct particularly in the characters just mentioned and in the toothed calyx.

Nicotiana Tabacum, L. Sp. L. 180.

Camps I to III and IX to XI, 500 to 8300 ft.

Distrib. Native of S. America; widely introduced.

SCROPHULARIACEÆ.

(By H. F. Wernham.)

Limnophila gratissima, Blume, Bijdr. 749.

Without locality.

Distrib. Tropical Asia and Australia.

Torenia peduncularis, Benth. in Wall. Cat. n. 3956.

Camps VII to VIII, 3600 to 4900 ft.

Distrib. Warmer parts of Eastern Asia.

Vandellia crustacea, Benth. Scroph. Ind. 35.

Camps III to X, 2500 to 6700 ft.

Distrib. Cosmopolitan in the tropics.

Bonnaya reptans, Spreng. Syst. i. 41.

Camps III to VI *b*, 1100 to 3900 ft.

Distrib. Tropical Asia and Mauritius.

Veronica carstensensis, Wernham, sp. nov.

Suffrutex erectus, lignosus, 1–2-pedalis, simplex, caulis insuper brunneo-pubescens, desuper glabratus. *Folia* opposita, sessilia, crassa, elliptica, 12–16 mm. longa, 6–9 mm. lata, obtusa, ultra medium late crenata, glabra; venæ, nisi centralis vix manifesta, omnino occlusæ. *Flores* magni, in racemos paucifloros axillares dispositi. *Pedunculi* rufo-pubescentes, 3–4 cm. longi. *Bracteæ* lineari-oblongæ, obtusæ, glabræ, 5–7 mm. longæ. *Pedicelli* graciles, veluti pedunculi induti, ad 9 mm. longi. *Calycis* lobi elliptico-oblongi, obtusi, sparsiuscule ciliati, aliter glabri, 4–5 mm. longi, 2–5 mm. lati. *Corollæ* glabræ lobi late obovati, apice rotundati, 1 cm. vel longiores, 7 mm. lati. *Capsula* glabra, 5 mm. longa, 6 mm. lata.

Camps XII to XIII, 10,500 to 11,000 ft.

Remarkable for the small thick leaves and the large flowers in few-flowered axillary inflorescences.

Veronica Vanderwateri, Wernham, sp. nov.

Herba parva, tamen valida, sublignosa; caulis foliosus, minute bi-lineatim puberulus, ceterum glaber. *Folia* coriacea, glabra, elliptica, 6·5 mm. × 3·5 mm., obtusa, crenata; venæ, nisi centralis basin versus in petiolum validum brevissimum decurrens, celatæ. *Flores* nutantes, terminales, solitarii (semper ?), extus omnino glabri. *Pedicellus* 4–6 mm. longus, minute pulverulentus; bracteolæ 2 coriaceæ, oblongæ, obtusæ, infra pedicelli medium insertæ, vix 3 mm. longæ, glabræ. *Calyx* 4·2 mm. longus, infra medium in lobos oblongos obtusos divisus. *Corollæ* campanulatæ tubus 3·5 mm. longus; lobi elliptici, obtusissimi, 5 mm. longi.

Camp XIV, 12,500 ft. "Flowers magenta."

Allied to *V. carstensensis* (*vide supra*), but distinct in its almost perfect glabrousness, much smaller leaves, etc.

Euphrasia culminicola, Wernham, sp. nov.

Fruticulus parvus, sæpius ramosissimus, insuper minute asperulo-pubescens; ramuli juniores tenues, sparse foliosi. *Folia* subcrassa, integerrima, ob marginem insuper fortissime revolutum cucullata, spathulata vel obovata, 2–4·5 mm. longa, glabra, supra nitentia. *Flores* in racemos laxos paucifloros ex axillis superioribus ortos dispositi; pedicelli tenues, brevissimi. *Calyx* minute pubescens, ± 4 mm. longus; lobi breviter oblongi, obtusi vel oblongo-lineares, subacuti. *Corollæ* tubus extus pubescens, ± 7 mm. exsertus; labii inferi lobus intermedius laterales subæquans, apice obtusissime bilobatus, obovatus, ca. 7 mm. × 5·3 mm., glaber; labium superum ad $\frac{1}{3}$ bilobum, galeatum, 5–6 mm. longum.

Camps XII, XIII, XIV, 10,500 to 12,500 ft.

Allied to *E. borneensis*, Stapf, but the leaves are entire, the tube exserted, etc. Remarkable for its woody nature, which extends to the smallest branchlets, and for the extremely small leaves.

EUPHRASIA SCUTELLARIOIDES, Wernham, sp. nov.

Herba simplex vel sparse ramosa, ± 5 cm. longa; caulis tenuis, minute pubescens. *Folia* obovato-spathulata, crassa, ± 3·5 mm. × 2 mm., glabra, margine apicem versus revoluta, utrinque uno dente laterali obtusissimo onusta, subsessilia vel brevissime petiolata. *Calyx* desuper sparse minute pubescens, 4·7 mm. longus, ad $\frac{1}{3}$ vel vix ad $\frac{1}{2}$ in lobos oblongos obtusissimos divisus. *Corollæ* extus sparse pubescentis tubus ad ca. 6·5 mm. e calyce exsertus, ore constrictus; labii inferi lobus intermedius laterales subæquans, obovato-truncatus, apice subinteger, ± 2 mm. longus; labium superum subgaleatum, bilobum, 2 mm. longum.

Camp XIII, 10,500 ft.

Remarkable for the small bidentate leaves and very small corolla-lobes.

LENTIBULARIACEÆ.

(By H. N. RIDLEY.)

UTRICULARIA STRIATULA, Sm. in Rees's Cycl. xxxvii. No. 17.

Camps VII to VIII and IX to X, from 3600 to 6700 ft. alt. In mossy forest.

Distrib. Africa, India, and Malaya.

The specimens differ from the typical plant of the Himalayas in having a more distinctly four-lobed lip with oblong truncate lobes, but otherwise closely resemble it. The flowers are described as light blue.

Var. MINOR, Ridl., var. nov.

Scapus 5 cm. longus, capillaris, floribus 2–3. *Sepalum* superius ovatum, obtusum, ·2 mm. longum, inferius 1 mm. longum. *Labellum* breviter trilobum, 1·5 mm. longum, lobis rotundatis medio retuso, calcare 2 mm. longo e basi angustato ad apicem incrassato.

Camps III to VI, 2100 to 2500 ft.

This is a much smaller plant, the flowers being not more than half the size; in all other parts, except the somewhat different lip, it resembles the above. I am unwilling it separate it specifically.

GESNERACEÆ.

(By S. MOORE.)

ÆSCHYNANTHUS ELLIPTICA, Lauterb. & K. Schum. Flor. deutsch. Schutzgeb. Südsee, 541.

Canoe Camp, 500 ft.

Distrib. Endemic.

ÆSCHYNANTHUS (§ HAPLOTRICHIUM) BRACHYPHYLLUS, S. Moore, sp. nov.

Caulis tenuis, rariramosus, hac atque illac radicans, bene foliosus, appresse pubescens. *Folia* opposita, parvula, subsessilia, ovata, obtusa, basi rotundata, firme membranacea, costa media in pagina inferiore pubescente exempta glabra, modice 10–13×5–8 mm. *Flores* inter minores, in axillis solitarii. *Pedicelli* ex axillis oppositis sæpe oriundi, quam folia paullo breviores, dense pubescentes, 5–8 mm. longi. *Calyx* alte partitus, 7–8 mm. longus; segmenta linearia, obtusa, extus puberula. *Corolla* extus scabriuscula, 30–32 mm. longa; tubus suberectus, elongatus, basi brevissime dilatatus, inde gradatim amplificatus, basi 2·5 mm., medio 4 mm., faucibus 6 mm. latus; labia valde abbreviata; antici lobi posticis plane majores, verisimiliter erecti vel breviter divaricati. *Stamina* subinclusa. *Ovarium* stipitatum, lineare, incluso stipite 2 cm. longo ut stylus brevis vix 3 mm. longus subtiliter pubescens. *Capsula* glabra, 11 cm. long.

Camps VI *a*, VIII, and IX, 3100 to 5500 ft.

Stems slender, often not more than 1 mm. thick, never exceeding 1·5 mm., giving off here and there, but very seldom, close to an internode a thickish, corky, apparently unbranched root. *Leaves* green above, very pale below, their margins, at least in the dry state, somewhat wavy and recurved; *petioles* 1 mm. in length.

To be inserted in the genus next *Æ. nummularius*, K. Schum., from which it differs chiefly in the diversely shaped, not fleshy, nearly glabrous leaves, longer calyx-segments, and the absence of a prominent gibbosity at the base of the corolla. A slightly different form with relatively longer and narrower leaves (14–18×5–7 mm.) was collected at Camp VI *a* at 3100 ft.

The present opportunity is taken to point out that in the description of *Æschynanthus nummularius* (as *Trichosporum nummularium*) in Journ. Bot. xxxvii. (1899) p. 173, the word "miniatis" is a mistake for "imminutis."

ÆSCHYNANTHUS (§ HAPLOTRICHIUM) SUBORBICULATUS, S. Moore, sp. nov.

Rami satis validi, 2–3 mm. diam. subdistanter foliosi, patule pubescentes. *Folia* breviter petiolata, suborbiculata, breviter cuspidulato-attenuata, apice ipso obtusa, basi cordata, carnosa, supra in sicco glabra foveolato-rugosaque, subtus appresse piloso-pubescentia, 5×4 cm. *Pedicelli* calyce longiores, ut calyx pubescentes, 13–15 mm. longi. *Calyx* alte partitus, 8 mm. longus; segmenta lineari-oblonga, obtusa, 3-nervia. *Corolla* extus scabriusculo-papillosa, 45 mm. longa; tubus 40 mm. longus, ima basi inflatus, cito constrictus, inde dilatatus, medio 12 mm., faucibus 19 mm. latus; limbi brevis lobi 7–10 mm. longi, omnes verisimiliter erecti. *Stamina* breviter exserta. *Ovarium* lineare, minute furfuraceum, 15 mm. longum, stipite pubescente 4 mm. longo fultum; stylus crassus, ovario fere æquilongus, sparsim pilosus, 12 mm. longus.

Camp I, 500 ft.

Leaves pale brown on both sides in the dry state; midrib prominent below; petioles 5 mm. long or less, hairy. Differs from *Æ. ellipticus*, Lauterb. & K. Schum., in the

hairy branches and leaves, the latter organs being larger and thicker in consistence, the shorter and broader corollas, etc. The attachment of the flowers to the stem cannot be described, as they have all become detached.

ÆSCHYNANTHUS (§ HAPLOTRICHIUM) GESNERIFLORUS, S. Moore, sp. nov.

Caulis foliosus, raro radicans. *Folia* opposita, breviter petiolata, ovato-oblonga, apicem versus attenuata, apice ut basi obtusa, margine repando-crenulata, carnosa, glabra, 7–8 mm. longa, summum 2·7–3·4 cm. lata. *Pedunculi* brevissimi, biflori, ut pedicelli calyce breviores, pubescentes. *Calyx* alte partitus, brunneo-piloso-pubescens; segmenta lineari-lanceolata, obtusiuscula, trinervia, 14–15 mm. longa. *Corolla* longiuscule tubulosa, extus piloso-pubescens, 4 cm. longa; tubus infundibularis, etsi prope basin inflatus ibique 5·5 mm. latus, superne curvatus, medio 7 mm., faucibus 13 mm. latus; labium posticum quam anticum minus; labii antici lobi verisimiliter erecti 9×10 mm. *Stamina* subinclusa. *Ovarium* (stipite incluso) 3 cm. longum, lineare, pubescens, stylo 2 mm. longo, basi curvato, stigmate peltato.

Camps IX to XI, 5500 to 8300 ft.

Stem 2 mm. thick, somewhat swollen at the nodes, provided with a light brown cortex. Neither bracts nor bracteoles seen. *Filaments* flattened, glandular-puberulous, about 15–20 mm. long; anthers 3·5 mm. long.

The affinity is with *Æ. longiflorus*, DC., which, *inter alia*, has larger, somewhat differently shaped and thicker leaves, and nearly glabrous flowers with linear calyx-segments and considerably longer corolla.

DICHROTRICHUM CHALMERSII, F. Muell. in Melb. Chem. & Drug., June, 1884.

Camp I, 500 ft.

Distrib. Endemic in New Guinea.

A synonym of this is *D. papuanum*, S. Moore, in Journ. Bot. 1899, p. 174. This name was published under the mistaken impression that Mueller had described the plant under the MS. name accompanying the specimens sent to Kew.

DICHROTRICHUM AMABILE, S. Moore, sp. nov.

Rami radicantes, sparsim foliosi, hirsuto-villosi. *Folia* dimorpha, altera manifeste petiolata, ovato-oblonga, prope apicem attenuata, apice ipso obtusa, basi obtusa rotundatave, margine dupliciter serrata, summum 14×6·5 cm., sæpius 10–12×3·5–4·5 cm., altera parvula, subsessilia, ovata, obtusa, integra, cito decidua, omnia pergamacea, utrinque præsertim in pagina inferiore dense appresseque hirsuto-villosa. *Cymæ* umbellatæ, 5–8-floræ, pedunculis validis sat longis hirsuto-villosis 6–10 cm. longis insidentes; pedicelli calyce breviores, 8–12 mm. longi; bracteæ lineari-oblongæ vel oblanceolatæ, pedicellis paullo breviores. *Calyx* ultra medium divisus, ut pedicelli dense appresse hirsutus, 22 mm. longus; tubus 9×5 mm.; segmenta oblongo-lanceolata, obtusa, 13 mm. longa. *Corollæ* 4 cm. longæ extus dense scabriusculæ tubus calycem excedens, subrectus, superne gradatim

ampliatus, 25 mm. longus; limbus obliquus, lobis posticis 10×13 mm. *Stamina* breviter exserta; antherarum loculi basi contigui. *Ovarium* glabrum, fere 3 cm. longum, stipite 5 mm. longo insidens, in stylum brevem 1 cm. longum desinens.

Camp III, 2500 ft.

Blade of leaf in the dry state cinereous below; petioles of the larger leaves up to 7·5 cm., ordinarily 2·5–4 cm. in length, stout, subterete, 3 mm. in diameter. *Pedicels* of fully-developed flowers 8–12 mm. long, a little longer than the linear-oblong oblanceolate bracts. *Flowers* "deep sealing-wax red." *Filaments*, longer 29 mm., shorter 25 mm. long; anthers 5·5 mm. long.

This differs from *D. Chalmersii*, F. Muell., in its longer stalked leaves, shorter peduncles, and entirely dissimilar calyces.

DICHROTRICHUM CONCINNUM, S. Moore, sp. nov.

Caulis scandens, radicans, distanter foliosus, sparsim piloso-villosus. *Folia* dimorpha, altera majora longipetiolata, ovata, apicem versus attenuata, obtusa, basi rotundata leviterque obliqua, margine dupliciter argute serrata, tenuiter pergamacea, utrinque appresse pilosa vel piloso-villosa, 6·5–8 × 3·5–5 cm., altera multoties minora, subsessilia, ovata, obtusissima, 8–11 mm. longa. *Pedunculi* petiolos æquantes vel excedentes, piloso-villosi, 5–10 cm. longi. *Cymæ* 6-floræ; pedicelli calyce paullo breviores, ut calyx breviter villosi, 0·7 mm. longi. *Calycis* subcampanulati ultra medium divisi segmenta lineari-oblonga, obtusa, 8 × 1·75 mm. *Corolla* extus scabriuscula, 38 mm. longa; tubus calycem longe superans, subrectus, superne sensim ampliatus, 24 mm. longus; lobi postici ceteris minores. *Stamina* exserta; antherarum loculi basi contigui. *Ovarium* breviter stipitatum, glabrum, in stylum itaque glabrum breviter exsertum desinens, stylo incluso 34 mm. longum.

Camp VI *b*, 3900 ft.

Leaves grey when dry, paler on the underside; petioles 4–6 cm. long, pilose-villous. Longer *filaments* 29 mm., shorter 27 mm. long; anthers 3 mm. long.

From the last-described this is distinguishable at sight by means of its indumentum, dissimilar foliage, and smaller calyx.

DICHROTRICHUM VANDERWATERI, S. Moore, sp. nov.

Caulis scandens, radicans, rarifoliatus, sparsim piloso-villosus. *Folia* dimorpha, altera pro rata parva, longipetiolata, ovata, apicem versus attenuata, obtusa, basi obliqua rotundata, margine dupliciter serrata, tenuiter pergamacea, utrinque appresse piloso-villosa, 6–7·5×3·5–4 cm., altera minuta, subsessilia, ovata, obtusa, 5 mm. longa. *Cymæ* 9-floræ; pedunculus validus, foliorum limbum plane excedens, aliquanto nutans, sparsim piloso-villosus, 11 cm. longus; pedicelli 7–8 mm longi, calyce breviores, ut calyx sparsim breviterque villosi. *Calyx* turbinatus, haud medium usque divisus, 12 mm. longus; segmenta late oblonga, obtusa, 5 mm. longa. *Corolla* calycem magnopere excedens, extus scabriuscula, 5 cm. longa; tubus basi haud constrictus, superne parum amplificatus, 3 cm. longus; lobi postici ceteris paullo minores. *Stamina* exserta; antherarum loculi basi contigui. *Ovarium*

longiuscule stipitatum, piloso-pubescens, in stylum tenuem exsertum hispide pilosum excurrens, stylo incluso 5 cm. longum.

Camp VI *a*, 3100 ft.

Leaves whitish-green when dry, slightly more so on the underside; petioles 4·5–5 cm. long, pilose-villous. (One leaf, apparently not fully grown, is 5×2·5 cm. and borne on a petiole only 2·5 mm. long.) Longer *filaments* 31 mm., shorter 28 mm. long.

Greatly resembling *D. concinnum* in indumentum and foliage, but unlike in calyx and corolla and in the hairy ovary and style.

Dichrotrichum lateritium, S. Moore, sp. nov.

Caulis scandens, radicans, dense villosus. *Folia* dimorpha, majora ovata, sursum attenuata, apice obtusa, basi obliqua rotundata, margine crenato-serrata, pergamacea, utrinque ut petioli villoso-tomentosa, petiolis sese subæquantibus insidentia 6–7×3·5–4 cm.; folia minora valde imminuta. *Cymæ* 9-floræ; pedunculus validus, foliis brevior, villosus, 4·5 cm. longus; pedicelli breves, 4–5 mm. longi, ut calyx sparsim villosi. *Calyx* subcampanulatus, ad dimidium vel trientem inferiorem indivisus, 13–15 mm. longus; lobi oblongo-lanceolati, obtusi, 7·5–10 mm. longi. *Corolla* 4 cm. longa, extus dense scabriuscula; tubus subrectus, a basi gradatim ampliatus, basi constrictus, 20 mm. longus, juxta medium 5 mm., faucibus 10 mm. latus; lobi postici 8 mm. longi. *Antherarum* loculi basi contigui. *Ovarium* stipitatum, ut stylus puberulum, 3 cm. longum; stylus sat brevis, 8 mm. longus, ovario vix æquilatus.

Camp VI *c*, 5500 ft.

Leaves whitish-green; petioles 5–5·5 cm. long. Long *filaments* 24 mm., short 20 mm. long; anthers 3–3·75 mm. long.

This differs from the last two in the indumentum. It has the shorter and relatively broader corollas of *D. concinnum* and the calyx divided at least to the middle; but its peduncle is slender, the calyx-segments oblong-lanceolate, and the much thicker ovary and style are hairy, though less so and in a different manner from the same organs in *D. Vanderwateri*. The cutting of the leaf-margin is also different from that which obtains with *D. concinnum* and *D. Vanderwateri*.

Dichrotrichum parvifolium, S. Moore, sp. nov.

Caulis scandens, radicans, bene foliosus, pilosus, tandem fere glaber. *Folia* dimorpha, majora ad normam generis parva, sat longipetiolata, ovata sæpius ovato-oblonga, obtusa, basi obliqua obtusa, margine argutiuscule serrata vel serrato-crenata, membranacea, utrinque ut pedunculi appresse piloso-villosula, circa 4×2 cm.; folia minora diminuta. *Pedunculus* folia magnopere excedens, 14–15 cm. longus, aliquanto nutans, cymam 5–9-floram fulciens; pedicelli calyci æquilongi, ut calyx piloso-villosi. *Calyx* 13 mm. longus, subturbinatus, medium usque lobatus, lobis lanceolato-oblongis obtusis margine denticulatis. *Corolla* calyce fere ter longior, extus scabrida, 35 mm. longa; tubus subrectus, basi haud constrictus, inferne tubulosus, inde sensim dilatatus, 24 mm. longus, inferne 3 mm., faucibus fere 8 mm.

latus; lobi postici ceteris plane breviores. *Stamina* exserta; antherarum loculi basi breviter divergentes. *Ovarium* stipite 8 mm. longo insidens, glabrum, 15 mm. longum, stylo brevi incluso crasso itaque glabro 4 mm. longo coronatum. *Capsulæ* 25–35 cm. longæ, 1·5 mm. latæ, brunneæ, glabræ.

Camp VI *b* (fruit), Camps VIII to IX (flower), 3900 to 5500 ft.

Leaves grey when dry, and almost the same shade on either side; petioles about 2 cm. in length, pilose-villous. Longer *filaments* 18 mm., shorter 15 mm. long; anthers 2·5 mm. long.

A very distinct species, the like of which I have neither seen nor know of from description. The small leaves and flowers, the latter with a narrow tube especially when dry, together with the indumentum, are the plant's chief external features.

The specimens taken to be the fruiting ones of this species were gathered, it will be observed, at a lower elevation than the flowering ones, which is only what one would expect. The calyces of the fruiting and flowering specimens agree exactly, but the flowers of the former seem to have been somewhat larger, unless, indeed, they have slightly increased during fruiting.

MONOPHYLLÆA BREVIPES, S. Moore, sp. nov.

Caulis crassiusculus, præsertim prope folium albo-furfuraceus. *Folium* late ovato-oblongum, apice verisimiliter obtusum vel obtusissimum, basi cordatum vel latissime rotundatum, margine leviter undulatum, membranaceum, 12–15 cm. longum, usque ad 6–9 cm. latum, supra fere glabrum, subtus præsertim in nervis minute albo-furfuraceum. *Pedunculi* sub floribus pro rata breves, tenues, hispidule puberuli, tandem glabri, 5–15 mm. longi, postremo 50 mm. attingentes. *Racemi* abbreviati, pauciflori; pedicelli calyce breviores, 3–4 mm. longi, hispide pubescentes. *Calyx* ultra medium divisus, furfure albo pilis paucis intermixto præditus, 6 mm. longus; lobi lanceolati, acuminati, 3·5 mm. longi, posticus ceteris plane longior, 6 mm. longus. *Corolla* calyci æquilonga, extus glabra, intus in dimidio superiore papillosa; tubus 4 × 2 mm.; labium posticum 3 mm., anticum 2 mm. longum, lobis suborbicularibus circa 2 mm. diam. *Filamenta* edentula; antheræ omnes cohærentes. *Ovarium* ovoideum, 1 mm. longum, ut stylus 2 mm. longus puberulum.

Camp III, 2500 ft.

Stem of the specimens to hand 8 cm. long, when dry 2–2·5 mm. wide. *Leaves* somewhat glaucous above, whitish below, with about 16 pairs of nerves, of which the proximal 6 pairs are, as is the rule in the genus, closer together than the arcuate distal ones. *Racemes* at most of about 10 flowers, though usually fewer, not more than 5 mm. long. *Corolla* white. *Filaments*, shorter 1 mm. long, about half the length of the longer.

M. papuana, Lauterb., has, according to the description, larger leaves, longer peduncles, racemes and pedicels, a smaller calyx divided almost to the base into elliptical, subacute segments, and a corolla only 4 mm. long.

This is the second known species from New Guinea.

CYRTANDRA (§ STELLATÆ) ERIOPHYLLA, S. Moore, sp. nov.

Caulis crassus, densissime fulvo-villoso-tomentosus. *Folia* breviter petiolata, ovato-oblonga, basi apiceque obtusa, margine repanda, coriacea, utrobique densissime appresse fulvo- (vel brunneo-) villoso-tomentosa, in pagina superiore bullata tardiusque glabrescentia, summum 11×5 cm., interdum modo 7×3 cm. *Flores* fasciculati, bracteis amplis late ovatis irregulariter laceratis dense villoso-tomentosis ±1·5 cm. longis 2 cm. latis involucrati. *Pedicelli* villosi, circa 5 mm. longi. *Calyx* campanulatus, dense villoso-tomentosus, usque ad medium partitus; segmenta inferne deltoidea, superne linearia, lana densissima involuta, 7 mm. longa. *Corolla* dense villoso-tomentosa, calycem plane superans, 24 mm. longa; tubus subrectus, in dimidio inferiore cylindricus, 10×4 mm., sursum inflatus, 9×8 mm.; limbus subbilabiatus, lobis posticis reliquis minoribus brevioribusque, antico lateralibus simili nisi longiore 6 mm. longo. *Stamina* inclusa; antherarum loculi cohærentes. *Staminodia* 2, filiformia vel spathulata, 2–2·5 mm. long. *Ovarium* ovoideo-oblongum, glabrum, 5 mm. longum, in stylum glabrum 8 mm. longum desinens.

Camps XI to XII, 8300 to 11,000 ft.

Petioles stout, very woolly, 1–2 cm. long. *Fascicles* of flowers apparently sessile or nearly so. *Flowers* "deep brownish yellow." *Filaments* 3 mm. long; anthers as long as the filaments.

The affinity of this seems to be with *C. chrysea*, C. B. Clarke, and *C. hypochrysea*, Kränzl., especially with the latter, but, *inter alia*, their calyx and corolla are different. Owing largely to this supposed affinity, I have placed the present plant in § *Stellatæ*, although its calyx is not divided quite according to the definition of that section.

The flowers being all detached, their relation to the stem is uncertain.

CYRTANDRA (§ DISSIMILES) WOLLASTONII, S. Moore, sp. nov.

Caulis sat validus, fulvo-tomentosus, cito glaber. *Folia* maxime imparia; majora longiuscule petiolata, obovata vel obovato-oblonga, sursum rotundata, prope apicem cuspidato-acuminata, apice obtusa, basi cuneatim extenuata, margine simpliciter vel dupliciter dentata, pergamacea, utrinque costis pubescentibus puberulisve exemptis glabra, 18·5–20 cm. longa, 7·5–10 cm. lata; minora lanceolato-subulata, fulvo-pubescentia, circa 1 cm. longa; novelli dense fulvo-tomentosi. *Calyx* 14×7–8 mm., tubulosus, glaber, 5-dentatus, dentibus 3 posticis quam antici majoribus. *Corolla* 19 mm. longa; tubus calycem breviter excedens, paullo curvatus, inferne subcylindricus (basi parum dilatatus), superne infundibularis, faucibus 6 mm. latus; limbi lobi tubo multo breviores, inter se subæquales, ovati, obtusi, 3 mm. longi. *Stamina* inclusa; filamenta brevia, glabra; antheræ ovoideæ, cohærentes. *Staminodia* 0. *Ovarium* oblongum, glabrum, 4 mm. longum, stylum brevem semi-æquans.

Camps VII to VIII, 3900 to 4900 ft.

Stem about 4 mm. in diameter, with a light brown longitudinally striated cortex. *Leaves* when dry greyish-green, somewhat bilaterally asymmetrical; lateral nerves about 20 pairs, more prominent on the lower side; petioles stout, shallowly channelled above, tawny pubescent, but some glabrous, about 4 cm. long, though usually shorter. *Filaments* inserted at 5 mm. from the mouth of the tube, much flattened, about 2·5 mm. long; anthers slightly more than 2 mm. in length.

Apparently close to *C. trachycaulis*, Schlechter. Although the flowers are all detached, they are most probably, like those of *C. trachycaulis*, axillary and solitary (possibly sometimes binate), and have but a very short pedicel, though not one of the flowers shows the latter. Besides the hairy stem *C. trachycaulis* has somewhat different leaves and larger flowers.

CYRTANDRA (§ DISSIMILES) FOLIOSA, S. Moore, sp. nov.

Rami validi, cortice sordide albo longitrorsum striato obducti, frequenter foliosi, glabri. *Folia* imparia, majora magna, brevipetiolata, elongato-elliptica, sub apice breviter acuminata, basi apiceque obtusa, margine crenata vel crenato-dentata, tenuiter pergamacea, utrinque glabra, summum 30×10 cm. sæpe 18·5–20×6–7 cm., altera stipuliformia, circa 1 cm. longa. *Flores* fasciculati, ex axillis foliorum jam delapsorum oriundi; fasciculi sessiles, pauciflori; pedicelli calyce paullo breviores, glabri, circa 7 mm. longi. *Calyx* anguste campanulatus, glaber, 9 mm. longus; lobi tubo breviores, 3 mm. longi, inferne deltoideo-triangulares, superne lineares. *Corolla* glabra 13 mm. longa; tubus calyci subæquilongus, superne inflatus, 11 mm. longus, lobi postici suborbiculares, 2×2 mm., antici ovati, 3×2·5 mm. *Stamina* inclusa; antheræ apice cohærentes. *Ovarium* glabrum, 4 mm. longum, in stylum paullulum breviorem 3 mm. longum validum puberulumque desinens.

Camp I, 500 ft.

Leaves greyish or brownish green above when dry, pinkish brown below; midrib and lateral nerves (about 16 pairs) more prominent on the lower face; petioles stout, glabrous, about 1 cm. long. *Staminodes* subulate, recurved, 1 mm. long. *Anthers* ovoid, narrowed at the apex, cells slightly divergent at the base, 3 mm. long.

CYRTANDRA (§ DISSIMILES) LANCEOLIFERA, S. Moore, sp. nov.

Caulis aliquanto angulatus, hirsutus, mox glaber et cortice crebro transverse rimoso obductus. *Folia* optime inæqualia; majora majuscula, oblanceolata vel lanceolato-obovata, acuminata, basin versus sensim contracta, basi obliqua obtusa, margine dentato-serrata, basin versus integra, pergamacea, supra glabra, subtus costa media hirsutula excepta fere glabra, margine sparsim ciliata, 20–28×4–7 cm.; minora stipuliformia, dense hirsuta, fere 1 cm. longa. *Flores* in fasciculos sessiles pauciflores digesti; pedicelli calyce longiores, pilosi, circa 1 cm. longi. *Calyx* campanulatus, pilosus, 9 mm. longus; lobi tubo multo breviores, deltoidei, obtusi, 2 mm. longi. *Corolla* calycem facile superans, 15 mm. longa; tubus 9 mm. longus, inferne cylindricus, superne inflatus necnon parum curvatus; lobi tubo longe

breviores, postici ceteris minores, 2·5 mm. longi. *Stamina* subinclusa; antheræ apice cohærentes, cito liberæ. *Staminodia* 0. *Ovarium* late ovoideum, 2·5 × 2 mm., glabrum; stylus breviter exsertus, pilosus, 11 mm. longus; stigma bilobum, lobis 1 mm. longis.

Camps III to VI *a*, 2500 to 3100 ft.

Leaves light brown or olive-green above, paler below, midrib rather prominent; side nerves seen best on the lower side, about 16–20 pairs; petioles short, broadly channelled above, hirsute, 5–6 mm. long. *Flowers* white. *Filaments* nearly 1 cm. long, anthers rather more than 2 mm. long, the cells slightly diverging at the base.

CYRTANDRA (§ DISSIMILES ?) CONSIMILIS, S. Moore, sp. nov.

Folia ampla, breviter petiolata, oblongo-obovata, prope apicem acuminata, apice obtusa, basin versus cuneatim angustata, basi obtusa, margine dentata, in triente proximali integra, pergamacea, glabra, circa 20 × 5–6 cm. *Flores* fasciculati, 3-ni (an semper ?); pedunculus 0 vel summum brevissimus; pedicelli calyci subæquilongi, tenues, minute puberuli, ± 10 mm. longi. *Calyx* tubuloso-campanulatus, glaber, 10·5 mm. longus, breviter lateque 5-dentatus, dentibus obtusis summum 1 mm. longis. *Corolla* extus glabra, 23 mm. longa; tubus ex calyce breviter emergens, subrectus, subcylindricus, 12 mm. longus; limbi lobi postici antico multo breviores, 2 mm longi. *Stamina* breviter exserta; antheræ apice cohærentes, cito liberæ. *Staminodia* 0. *Ovarium* oblongo-ovoideum, glabrum, 4 mm. longum, stylo glabro satis valido 10 mm. longo terminatum.

Camp VI *a*, 3100 ft.

Leaves with the two halves somewhat unsymmetrical, drying pale brown above and greenish below; lateral nerves about 12 pairs, nervation seen best on the lower side; petioles 5–7 mm. long, thick, transversely corrugated, glabrous or nearly so. *Filaments* 9 mm. long; anthers 2 mm.

The material consisting only of detached leaves and flowers, the section to which it belongs must remain doubtful. In foliage this is much like the last described, but the floral differences are too great to warrant its being considered a mere variety.

CYRTANDRA (§ DISSIMILES) QUERCIFOLIA, S. Moore, sp. nov.

Caulis crebro ramosus, ramis foliosis cito glabris. *Folia* opposita, valde dissimilia, majora brevipetiolata, oblongo-oblanceolata, caudato-acuminata, apice ipso obtusa, basi obtusa, margine subargute dentata, pergamacea, glabra, 8–9 × 2·3–3 cm.; folia minora pusilla, subulata, cito decidua. *Flores* axillares, solitarii, pedicellis glabris vel fere glabris calycem æquantibus excedentibusve 7–10 mm. longis insidentes. *Calyx* 7 mm. longus, campanulatus, corolla plane brevior, glaber; lobi tubo paullulum breviores, e basi lata lineares, 3 mm. longi. *Corolla* 20 mm. longa, extus fere glabra; tubus 15 mm. longus, deorsum subcylindricus, sursum campanulatus necnon breviter curvatus; lobi tubo breviores, postici ceteris minores, 3 × 3 mm. *Stamina* subinclusa; antheræ cohærentes. *Staminodia* 2, apice

subvomeriformia, 3·5 mm. longa. *Ovarium* ovoideum, glabrum, 4·5 mm. longum, stylo subexserto pubescente 7 mm. longo. *Stigma* 2-ramosum, ramis 2 mm. longis.

Camps VII to IX, 3600 to 5500 ft.

Leaves with midrib impressed on the upper, prominent on the lower side of the leaf; side nerves about 7 pairs, conspicuous below; petiole stout, glabrous, 5 mm.; long small leaves soon disappearing, about 3 mm. long. *Filaments* inserted upon the calyx about 7 mm. from its mouth, 8 mm. long; anthers 2·5 mm. long.

CYRTANDRA (§ DISSIMILES) HOMOPLASTICA, S. Moore, sp. nov.

Caulis ramosus, ramis subtetragonis superne pubescentibus mox glabris paucifoliosis. *Folia* opposita, maxime inæqualia, majora breviter petiolata, oblongo-oblanceolata, cuspidato-attenuata, apice ipso obtusa, basi parum obliqua obtusa, margine dentata, pergamacea, glabra, folia minora parvula, subulata, diutule persistentia, 4 mm. longa. *Flores* bini, hac utque illac ex ramis foliis jam orbis orti; pedunculi nulli; pedicelli filiformes, calyce sæpius paullo longiores, ut calyx obscure puberuli, 5–10 mm. longi. *Calyx* 7 × 4 mm., tubuloso-campanulatus, corolla brevior, breviter 5-lobus, lobis deltoideis obtusis 1·5 mm. longis. *Corolla* 19 mm. longa, extus fere glabra; tubus subrectus, ex calyce eminens, infundibularis, 11 mm. longus; lobi postici ceteris minores, suborbiculares, 3 mm. diam.; lobus anticus comparate elongatus, 8 mm. long. *Stamina* inclusa; antheræ cohærentes, dein liberæ. *Ovarium* subsessile, ovoideum, glabrum, vix 3 mm. longum, stylo puberulo 13 mm. longo terminatum.

Camps VIII to IX, 4900 to 5500 ft.

Tips of *branches* and very young buds springing therefrom covered with a close rusty tomentum. *Leaves* with midrib and the 6–8 pairs of lateral nerves prominent below; petioles stout, deeply channelled, puberulous, 5–7 mm. long. *Filaments* nearly 1 cm. long; anthers oblong, cells slightly diverging at the base, 2·25 mm. long. *Staminodes* apparently absent.

In appearance this is very like *C. quercifolia*; indeed, its leaves are, except for their shorter narrowed tip, scarcely distinguishable. The flowers, however, are in several respects different.

The front lobe of the only flower available for examination has become partly separated, so that its exact length (and thus the length of the tube of the corolla) cannot be stated, although the measurement given above is believed to be correct.

It is worthy of remark that occasionally both the leaves of a pair are reduced to small stipule-like organs.

CYRTANDRA (§ DISSIMILES) KLOSSII, S. Moore, sp. nov.

Caulis sat tenuis, crebro foliosus, anfractuosus, fusco-hirsutus. *Folia* maxime inæqualia; majora lanceolata, acuminata, apice acuta, basi obliqua, in petiolum brevem desinentia, margine distanter serrulata, membranacea, primo albo- vel fulvo-tomentosa, mox præsertim in pagina superiore sparsim pubescentia, 5–10 ×

1–2·7 cm., minora parvula, sæpissime circa 5 mm. longa, lanceolata, cito decidua. *Calyx* elongatus, tubulosus, corolla brevior, 3 cm. longus, usque $\frac{1}{3}$ in labia duo divisus; labii segmenta oblongo-triangularia, obtusa, labii postici 3 quam antica multo breviora, 4–4·5 mm. longa. *Corolla* 36 mm. longa; tubus rectus, 23 mm. longus, subcylindricus (superne breviter dilatatus), extus glaber; labii antici lobi late oblongi, obtusissimi, 13 mm. longi, labium posticum latius oblongum, 14·5 mm. longum, breviter bilobum, lobi omnes apicem versus dorso barbati. *Stamina* 2 exserta; antheræ mox liberæ; staminodia 0. *Ovarium* ovoideum, glabrum, 3·5 mm. longum, stylo breviter exserto superne pubescente 22 mm. longo (interdum usque ad 2 mm. abbreviatum) terminatum. *Fructus* stylo abbreviato vel styli elongati basi persistente coronatus, 12 mm. longus.

Camp VI *b*, 3900 ft.

Leaves with hirsute petioles, 2–6 mm. long. *Filaments* somewhat fleshy, 15 mm. long; anthers narrowly ovoid, 3 mm. long.

Var. HEPTANTHA, S. Moore, var. nov.

A typo abhorret præsertim foliis majoribus 10–13×2–3·5 cm., calyce angustiore (28×6 mm.), capsula minore (10 mm. longa).

Camp VI *b*, 3900 ft.

This is possibly a distinct species, but the narrow calyx seems to be the only essential difference.

The affinity of *C. Klossii* seems to be with *C. trisepala*, C. B. Clarke, but its flowers apparently spring from the stem after the leaves have been shed. *C. trisepala* has larger leaves, and flowers with a much smaller calyx and corolla.

The calyx is very unlike that of most Cyrtandras, and is a good instance of correlation of growth, as it shows much resemblance in its lobing to the corolla. With this in mind, and the absence of staminodes, which organs in text-books are always said to be present in *Cyrtandra* flowers, there seems some ground for supposing that we may here have a distinct genus. Against this view is the fact that there are species, though only a few, of *Cyrtandra* without staminodes; moreover, *C. radiciflora*, C. B. Clarke, which possesses staminodes, has a strongly zygomorphic calyx. Perhaps the matter would be more satisfactorily settled by placing those species with a zygomorphic calyx in a section by themselves.

ACANTHACEÆ.

(By S. MOORE.)

APORUELLIA PAPUANA, S. Moore, sp. nov.

Caulis erectus, ramosus, ramis bene foliosis ad nodos tumidis teretibus juvenilibus pubescentibus puberulisve mox glabris. *Folia* breviter petiolata, ovato-lanceolata, acuminata, apice obtuse acuta, basin versus sensim contracta, margine undulata, firme membranacea utrobique (exemptis costis præsertim in pagina inferiore puberulis) glabra. *Flores* in racemos spiciformes simplices paucifloros axillares vel pseudo-terminales foliis breviores vel iisdem æquilongos sparsim puberulos

digesti, circiter 10 cm. longi. *Bracteæ* ut bracteolæ subulatæ, quam calyx breviores, illæ ± 6 mm., hæ circa 4 mm. longæ. *Calycis* sat alte partiti 12 mm. longi, segmenta filiformia, basin versus ampliata, summum microscopice puberula, 9–10 mm. longa. *Corollæ* tubus sat elongatus (25 mm. longus), angustus, superne breviter usque ad 2·5 mm. amplificatus, extus minute glandulosus; lobi suborbiculares, inter se subæquales, tubo multo breviores, 10–12 mm. longi. *Stamina* medium tubum versus inserta; antheræ inclusæ, loculis basi obtusis. *Ovarium* apice ipso coarctatum, glabrum, 4·5 mm. longum; stylus 22 mm. longus; ovula in loculis circiter 9.

Canoe Camp, 150 ft.

Leaves drying greyish green, paler below; cystoliths fairly well seen on both sides. *Corolla* pale violet. Longer *filaments* 5·5 mm., shorter nearly 4 mm. long; anthers oblong, 2·7 mm. long. *Pollen* of spheroidal grains with scattered short spines or rather tubercles.

In foliage this is much like species in the neighbourhood of the plant described by Baron Mueller as *Leptosiphonium Stricklandi*; these, however, so far as I have been able to ascertain, are true Ruellias. The present plant is easily recognised by its *Eranthemum*-like inflorescence and corollas.

HEMIGRAPHIS KLOSSII, S. Moore, sp. nov.

Herba humilis, 8–10 rarius 15 cm. alta. *Caulis* erectus, ramosus, puberulus. *Folia* petiolata, oblongo-lanceolata, basi apiceque obtusa, margine undulata, costis in pagina inferiore puberulis exemptis glabra, 3·5 × 1–1·6 cm. *Spicæ* plurifloræ, nonnunquam paucifloræ, summum 2 cm. longæ, satis laxifloræ, pedunculo longiore modice 2·5–3 cm. longo tenui puberulo suffultæ. *Bracteæ* oblanceolatæ, obtusæ, glabræ vel fere glabræ, ± 1 cm. longæ. *Calycis* 8 mm. longi segmenta inter sese subsimilia, lineari-lanceolata, acuminata, dorso breviter puberula. *Corolla* calycem paullum excedens, vix 10 mm. longa; tubus inferne coarctatus, 1 mm. latus, superne campanulatus, summum 4·5 mm. latus; lobi inter se subæquales, suborbiculares, emarginati, dorso microscospice puberuli, circa 2·25 × 2·25 mm. *Filamenta* basi per paria connata, longiora deorsum barbata. *Ovula* quoque in loculo 5–6. *Capsula* calyci æquilonga, 10–12-sperma, glabra. *Semina* ovata, 1 mm. longa.

Canoe Camp and Camps I and III to VI, 150 to 2500 ft.

Leaves greyish green when dry, paler beneath; petioles variable in length, usually 5–17 mm. long. *Flowers* "violet white." Free part of longer *filaments* 3 mm., of shorter 1·5 mm. long.

H. lithophila, K. Schum. & Lauterb., to which this is near, is described as having patently pilose stems, lanceolate-crenate leaves which are pilose and more densely so beneath, and linear ciliolate calyx-segments.

Var. ELATIOR, S. Moore, var. nov.

Planta usque ad 25 cm. alt. *Folia* summum 7 × 2 cm.

Canoe Camp, 150 ft.

HEMIGRAPHIS CAUDIGERA, S. Moore, sp. nov.

Caulis gracilis, anfractuosus, pubescens, cito puberulus. *Folia* petiolata, ampla, elliptico-lanceolata, breviter caudato-attenuata apice ipso (et basi) obtusa, margine crenata, membranacea, supra glabra, subtus sparsim puberula, 9·5–11·5 × 3·5–4·3 cm. *Spica* pedunculata, laxe pauciflora, pedunculo circa 5 cm. longo incluso, foliis parum brevior. *Bracteæ* lanceolatæ, obtusæ, puberulæ, inferiores 2 cm. × 3 mm., superiores gradatim minores. *Calycis* 12 mm. longi segmenta linearia, acuminata, puberula. *Corollæ* tubus calycem excedens, 15 mm. longus, superne gradatim amplificatus, faucibus 4 mm. latus; lobi inter se subæquales, obovati, obtusissimi, 5 × 4 mm. *Filamenta* per paria connata, majora in dimidio inferiore longe barbata. *Staminodium* 0. *Ovarium* sparsim puberulum; ovula pro loculo 5–6.

Canoe Camp, 150 ft.

The single specimen to hand is 26 cm. long, but the attachment to the soil is not shown. *Leaves* grey-green when dry, somewhat paler below, the caudate attenuation at most 1·5 cm. long, margins entire; petioles 1–2 cm. long, covered with short strigillose hairs. *Flowers* "violet white." Longer *filaments* 3 mm., shorter 0·75 mm. long; anthers 1·75 mm. long.

Different from the last in foliage and bracts.

LEPIDAGATHIS PAPUANA, S. Moore, sp. nov.

Caulis ascendens, circa sesquispithameus, quadrangularis, aliquanto anfractuosus, paucifoliosus, ad nodos tumidus, puberulus. *Folia* ovato-oblonga vel anguste elliptica, obtusa, basi in petiolum brevem contracta, margine undulata, membranacea, supra glabra, subtus præsertim in nervis subtiliter puberula, 6·5–14 × 2·8–4·8 cm. *Spicæ* axillares vel terminales, solitariæ vel 2–3-næ, cylindricæ, pro rata laxiusculæ, pedunculatæ, pedunculis sæpius brevibus, ut inflorescentiæ axis pubescentes vel puberulæ, summum 4 cm. longæ. *Bracteæ* calyci subæquilongæ, circa 8 mm. longæ, ovato-lanceolatæ, spinuloso-acuminatæ, 1-nerves, margine breviter ciliatæ, ceteroquin fere glabræ. *Calycis* segmenta oblongo- vel lineari-lanceolata, spinuloso-acuminata, ut bracteæ scariosa, dorso puberula, margine breviter ciliata; segmentum posticum 8 × 2 mm., 3-nerve, cetera 1-nervia 7 × 1–1·5 mm. *Corolla* parva, calyce brevior, vix 5 mm. longa; tubus 3 mm. longus, medio contractus; labium posticum integrum, suborbiculare, 1·5 × 1·5 mm., antico circiter æquilongum; antici lobi laterales late oblongi, obtusi. *Ovarium* ovoideum, apice breviter papillosum, 1·5 mm. longum. *Capsula* oblonga, sursum angustata fere rostrata, 7 mm. longa. *Semina* pro capsula 4, 1 mm. diam., retinaculis acutis fulta.

Canoe Camp, 150 ft.

Stem with about four pairs of leaves separated usually by internodes of 4–6 cm. *Leaves* drying green, paler below, upper side with small scattered cystoliths; petioles 5–10 mm. long, puberulous. *Filaments* rather more than 5 mm. long; cells of anther linear-oblong, 1 mm. long.

I have compared this with Malayan specimens, referred (in MS.) by C. B. Clarke to

L. incurva, D. Don (i. e. *L. hyalina*, Nees), but the shorter spikes and the different and nearly glabrous bracts, bracteoles and calyces afford an easy means of distinguishing the present species.

Graptophyllum pubiflorum, S. Moore, sp. nov.

Frutex verisimiliter. *Rami* aliquanto compressi, ad nodos tumidi, puberuli, mox glabri. *Folia* ampla, elliptica, longiuscule necnon latiuscule cuspidato-acuminata, obtusa, basi in petiolum sensim desinentia, membranacea, utrinque glabra, usque ad 20×6·5–8 cm., summum vero circa 15×4 cm. *Flores* in racemos sat longos terminales vel ex axillis summis oriundos ita pseudothyrsum pubescentem summum 18 cm. longum, sed interdum breviorem efficientes digesti. *Bracteæ* bracteolæque lineari-subulatæ, pubescentes, illæ ± 4 mm., hæ 2–3 mm. longæ. *Calycis* segmenta inter sese subæqualia, lineari-oblonga, acuta vel breviter acuminata, pubescentia, 8×1–1·25 mm. *Corolla* extus (præsertim basin versus) glanduloso-pubescens; tubus in dimidio superiore amplificatus necnon parum incurvus, postice aliquantulum incrassatus, 34 mm. longus; lobi postici ceteris similes, nisi paullo minores, 8×4·5 mm. *Antheræ* breviter exsertæ, sagittatæ, apice acutæ. *Staminodia* abbreviata, clavata. *Ovarium* anguste ovoideo-oblongum, glabrum, 2·5 mm. longum. *Stylus* inclusus, pilosus, ovario æquilongus.

Camps I to III, 500 to 2500 ft.

Leaves dark olive-green above when dry and bright green below; petioles broad, running indistinguishably into the base of the leaf, 1–2 cm. long. *Corollas* white spotted with mauve. *Filaments* inserted just below the mouth of the corolla, glabrous, 8 mm. long, with anthers half that length.

A rather unsatisfactory specimen at Kew, collected by Sir W. MacGregor on Mount Scratchley, may perhaps be conspecific with this, though its leaves are considerably smaller. The chief points about *G. pubiflorum* are the large leaves and the hairy corollas with short lobes, only a little unlike each other.

Rungia Klossii, S. Moore, sp. nov.

Caulis ascendens, superne sparsim ramosus, ad nodos tumidulus, tetragonus, puberulus dein glabrescens. *Folia* subsessilia, apicem versus breviter attenuata, apice ipso obtusa, basi late rotundata, pergamacea, utrinque pilis strigillosis appressis sparsim obtecta necnon perspicue creberrimeque cystolithigera, sæpissime 2–4×1–2·5 cm. *Spicæ* cylindricæ, tandem satis elongatæ, 4×1·5 cm., caulem vel ramulos breves vel brevissimos terminantes. *Bracteæ* pro rata majusculæ, orbiculares, 3-nerves, late albo-marginatæ, dorso sparsim appresse breviterque hispidulæ, margine ciliatæ, 8–10×6–7·5 mm. *Bracteolæ* bracteis minores, ovato-rotundatæ, obtusissimæ, late membranaceæ, margine ciliatæ, 6×4 mm. *Calycis* segmenta 5, bracteolis paullo breviora, lineari-lanceolata, pilosa, 5·5 mm. longa. *Corollæ* tubus calyci subæquilongus, leviter urceolaris, compressus, 5 mm. longus; labium anticum amplissimum, 10×10 mm., breviter 3-lobum, quam posticum apice bifidum 5×4·5 mm. multo majus. *Antherarum* loculus superior muticus, inferior breviter

obtuseque calcaratus. *Ovarium* ovoideum, 1 mm. longum; stylus glaber, 7·5 mm. longus.

Camps VI *a*, VII, and VIII, 3100 to 4900 ft.

Leaves usually drying a golden-brown; petioles 1–3 mm. long, hairy. *Stamens* shortly exserted; filaments broad and flat, 4 mm. long; cells of anther a little more than 1 mm. long.

This has the foliage almost exactly of *R. latior*, Nees, except for the cystoliths which are very conspicuous and constitute a marked feature of the species. The flowers of the two are, however, very unlike.

Referred to this species are specimens collected at Camps VI *b* and VII to IX, with somewhat narrower leaves usually 2–4 cm. long by 8–15 mm. wide, drying green, and bracts with a somewhat narrower colourless border. There seems no reason to give a varietal name to this form.

VERBENACEÆ.

(By H. F, WERNHAM.)

PREMNA PAPUANA, Wernham, sp. nov.

Frutex præter inflorescentiam glaberrimus; ramuli teretes, striati, lenticellosi. *Folia* oblonga, 5·5–7 cm. × 2–2·8 cm., subcoriacea, brevissime acuminata, acuta, basi rotundata, petiolo tenui ± 1 cm. longo; venæ subtus cum reticulo interveniente valde conspicuæ, vix tamen prominulæ, secundariæ utrinque 6–9. *Thyrsus* laxiusculus, ca. 20 cm. × 18 cm., minute ferrugineo-puberulus. *Flores* glabri, pro genere majusculi. *Calyx* subglobosus, late dentatus. *Corolla* 4–5 mm. longa, obtusissime ac subæqualiter 4-lobata, intus basin versus paullo barbata. *Antheræ* inclusæ. *Ovarium* glaberrimum, obconicum.

Camp VI *a*, 3100 ft.

Distinct in the lax inflorescence, the rather large flowers, and the (for this genus) small oblong leaves.

FARADAYA MAGNILOBA, Wernham, sp. nov.

Frutex scandens, glaber; ramuli teretes, striati. *Folia* firme chartacea, opposita, elliptica, ca. 18 cm. × 8 cm., basi obtusa, brevissime acuminata, acuta; venæ secundariæ utrinque ca. 6, subtus prominulæ; petiolus sæpe tortus, 3–4 cm. longus. *Flores* magni, albi. *Calyx* sub anthesi mox fere ad basin in lobos duos 2–5 cm. longos scaphiformes acutissime apiculatos divisus. *Corollæ* glabræ tubus infra angustus, cylindricus, insuper infundibulariter ampliatus, totus 3·5–4 cm. longus; laciniæ oblongæ, fere ad medium bilobatæ, ca. 5 cm. longæ. *Filamenta* longissime exserta, 14 cm. vel ultra longa, basi tumida, tomentosa, ceterum glabra; antheræ 4–5 mm. longæ, basi bilobæ. *Ovarium* minute flavo-pubescens. *Fructus* subpyriformis.

Camps I to III, 700 to 2500 ft.

Distinct in the large flowers and bilobed corolla-segments.

CLERODENDRON LINDAWIANUM, Lauterb. in Nachtr. Fl. Deutsch. Schutzg. Südsee, 372.
Camp VI *a*, 3100 ft.
Distrib. Endemic in New Guinea.

CLERODENDRON UTAKWENSE, Wernham, sp. nov.

Frutex glabratus; ramuli novelli subteretes, striati, fistulosi, mox cortice lignoso induti, obtuse quadrangulares. *Folia* ampla, papyracea, elliptica vel ovalia, 8 cm. × 7 cm., ad ca. 20 cm. × 16 cm., basi rotundata, nonnunquam cordata; petioli teretes, striati, debiliusculi, subfistulosi, foliorum superiorum nonnunquam vix 1 cm. longi, inferiorum ad 12–14 cm. longi. *Flores* majusculi, dilute coccinei, in thyrsum amplum ca. 20 cm. longum latumque dispositi; rhachis fistulosa, apicem versus tenuis. *Calyx* bilabiatus, 1·6 cm. longus, labio inferiore amplo ovato, superiore lanceolato acuminato. *Corollæ* glabræ tubus gracilis, ca. 2 cm. e calyce exsertus; lobi inæquales, apice rotundati, oblongi, duo ca. 1·5 cm. × 7 mm., alii ca. 1 cm. × 4 mm. *Stamina* e corolla 7 cm. vel longius exserta.

Canoe Camp and Camp I, 150 to 500 ft.

Related to the Bornean *C. Bethuneanum*, Low, differing in the bilabiate calyx and exserted corolla-tube. Mr. Kloss describes the flowers as "pinkish-scarlet," and in more mature specimens as "carmine."

LABIATÆ.

(By S. MOORE.)

OCIMUM SANCTUM, Linn. Mant. i. 85.
Camps III to VIII, 2500 to 4900 ft.
Distrib. Arabia, India, and Malay Archipelago to Australia and Polynesia.

PLECTRANTHUS (§ GERMANIA) KLOSSII, S. Moore, sp. nov.

Herba herbacea, parva. *Caulis* ascendens, pauciramosus, plurifoliosus, plus minus piloso-hirsutus. *Folia* parvula, brevipetiolata, ovata, obtusa, basi rotundata nisi late obtusa, margine crenata, membranacea, supra piloso-puberula, subtus fere glabra. *Spicastri* simplices, folia longe superantes, piloso-puberuli; verticillastri pauci, tandem circa 1·5 cm. inter sese distantes, plerique circa 6-flori; bracteæ valde imminutæ, persistentes; pedicelli graciles, calyce certe longiores, sparsim glanduloso-pubescentes. *Calycis* florescentis sparsim pubescentis lobus posticus suborbiculatus, marginibus decurrentibus; lobi laterales postico fere æquilongi, lanceolati, obtusiusculi; lobi antici quam laterales paullo angustiores, apice acuti; calyx fructicans decurvus, mediocriter auctus. *Corollæ* tubus calycem plus quam 2-plo excedens, glaber; labium anticum obovatum, obtusum, concavum; labii postici lobi laterales late oblongi, reliqui rotundati, omnes obtusissimi. *Stamina* bene exserta. *Antherarum* loculi confluentes.

Camps IX and X, 5500 to 6700 ft.

Plant about a span high or less. *Leaves* 7–13×4–10 mm., fairly evenly distributed up the stem, drying brownish; petioles at most 3 mm. long, usually less. *Spicasters* eventually up to 10 cm. in length (including the peduncle), though sometimes shorter, slender, each bearing several verticillasters; bracts exceedingly small, subulate, not exceeding 1 mm. in length; pedicels mostly 4–5 mm. long, in the flowering stage ascending or patent. *Calyx* in flower slightly oblique at the base, 2·5 mm. long; upper lobe 1·5 mm. long and as much across, the remaining lobes a trifle shorter, in fruit slightly exceeding 5 mm. in length, upper lobe 2×3 mm.; lateral lobes 2·25×·75 mm., fruit lobes a trifle longer than the lateral, 1·5 mm. wide, incurved. Tube of *corolla* 5·5 mm. long, 1·5 mm. wide; lower lip barely 4 mm. long; side lobes of upper lip 1·5×1 mm.; back lobes 1·5×1·5 mm. *Filaments* exserted nearly 5 mm. *Style* 6 mm. long, glabrous.

Differs from *P. parviflorus*, Willd. chiefly in foliage and the minute bracts.

Var. MAJOR, S. Moore, var. nov.

Folia majora, circa 2×1·5–1·8 cm.; petioli 7–15 mm. longi. *Bracteæ* ovatæ, obtusæ, dorso piloso-pubescentes, usque ad 4 mm. longæ, diutule persistentes.

Camps VIII to IX, 4900 to 5500 ft.

Identical in flowers with the type.

COLEUS SCUTELLARIOIDES, Benth. in Wall. Pl. As. Rar. ii. 16.

Camps III to VI *b*, 2500 to 3900 ft.

Distrib. Indian Archipelago, Australia, Polynesia.

SCUTELLARIA LUZONICA, Rolfe, in Journ. Linn. Soc., Bot. xxi. (1884) 315.

Camps IX to XI, 5500 to 8300 ft.

Distrib. Philippine Islands.

APETALÆ.

(By H. N. RIDLEY.)

NYCTAGINEÆ.

PISONIA LONGIROSTRIS, Teysm. & Binn. Tijdschr. Nederl. Ind. xxv. (1863) 40.

Canoe Camp, 150 ft.; Camp I, 700 ft.

Distrib. Malay Archipelago.

PISONIA MUELLERIANA, Warb. in Engl. Bot. Jahrb. xiii. (1891) 304.

Canoe Camp, 150 ft. "Flowers pale greenish."

Distrib. Endemic in New Guinea.

AMARANTACEÆ.

Amarantus paniculatus, Linn. Sp. Pl. ed. 2, 1406.
Camps III to VIII, 2500 to 4900 ft.
Distrib. Throughout the tropics.

POLYGONACEÆ.

Polygonum muricatum, Meissn. Mon. Polygon. p. 74.
Camps VIII to IX, 4900 to 5500 ft.
Distrib. India.

Polygonum alatum, Buch.-Ham. in D. Don, Prodr. Fl. Nep. 72, var. nepalense, Hook. fil. Fl. Brit. Ind. v. 42.
Camps III to VI *b* and VII to IX, 2100 to 5500 ft., and Camps XI to XIII, 8300 to 10,500 ft.
Distrib. Tropical Africa and Asia.

NEPENTHACEÆ.

Nepenthes ampullaria, Jack, Comp. Bot. Mag. i. 271.
Canoe Camp, 150 ft., and between Camps III and IV, 1100 to 2500 ft.
"Pitchers pale green and dull purple or yellowish or whitish green with blotches."
Distrib. Malay Peninsula, Sumatra, Borneo, and New Guinea.

Nepenthes phyllamphora, Willd. Sp. Pl. iv. pt. ii. 874.
Camps I to VIII, 500 to 4900 ft.
Distrib. Malay Peninsula and Malay Islands.

Nepenthes neo-guineensis, Macfarlane, in Nova Guinea, viii. 340, fig. 67.
Camps VI *a*, VI *b*, VI *c*, 3100 to 5500 ft.

The lower globose ascidia, male flowers and fruit have not been described previously. The basal ascidia are urn-shaped, ventricose, 14 cm. long and 4 cm. across at the mouth, the wings 5 mm. wide, and ciliate. The margin of the peristomium is about 3 mm. thick, finely ribbed; the operculum is orbicular, cordate, 4 cm. long and 4·5 cm. wide, the apex quite rounded, densely covered with numerous circular glands on the inner face; the outer face is covered with a fine pubescence. The interior of the pitcher is purplish glaucous and glandular for the upper half, while the lower half is polished and densely glandular. The male raceme is 20 cm. long, very loosely flowered, the rachis covered with scattered ferruginous pubescence, 2 mm. thick, the peduncles 1·4 cm. long, 2-flowered below, 1-flowered above. Of the 4 perianth lobes the 2 outer are ovate, obtuse, ferruginously pubescent outside and glandular within, the inner lobes being similar but narrower and oblong-ovate. The glabrous andrœcium is 3–5 mm. long, the

anther-head globose with about 20 anthers. The fruiting panicle is 20 cm. long and about 11 cm. through. The peduncle is stout, over 20 cm. long and 4 mm. thick. The capsule is 3·5 cm. long, the segments lanceolate, acuminate at both ends, 4 mm. across, inside smooth and strongly keeled, outside at first covered with red pubescence; when that is fallen they are seen to be pitted. The perianth remains deflexed.

NEPENTHES OBLANCEOLATA, Ridl., sp. nov.

Caulis gracilis, teres, hirsutus, 2 mm. crassus. *Folia* petiolata, oblanceolata vel elliptica, acuta, 7–8 cm. longa, 3 cm. lata ubi latissima, coriacea, glabra, costa in dorso nigro-punctato hirta excepta, nervis in utraque facie obscuris, petiolo alato 4 mm. lato haud decurrente aut amplexicauli, cirrho gracili hirto 10 cm. longo. *Ascidia* cylindrica, 7–15 cm. longa, 1·5 cm. lata, dimidio inferiore dilatata, carinis nullis, extus parce pubescentia, intus in dimidio superiore lævia, glabra, eglandulosa, reticulationibus quadratis, in dimidio inferiore polita, dense glandulis transversim ellipticis tecta; peristomium angustum, 1·5–3 mm. latum; calcar cornutum, acuminatum, 2 mm. longum, hirtum; operculum ovatum, cordatum, obtusum, rotundatum, 2 cm. longum, 2–3 cm. latum, carina ad basin humili, ad apicem processu parvo conico complanato instructum, glandulis parvis dissitis pluribus cum paucis magnis marginibus elevatis prope apicem sitis, dorso minute puberulum. *Pedunculus* erectus, gracilis, hirtus, 8 cm. longus. *Racemus* subcompositus, laxus, 12 cm. longus, inferne parce ramosus, ramis hirtis bifloris 2 mm. longis, pedicellis 5 mm. vel (superioribus) 2 mm. longis. *Perianthii lobi* 2 exteriores ovati, oblongi, obtusi, extus hirti, intus glandulosi, 2 mm. longi, 1 mm. lati; 2 interiores angustiores. *Andrœcium* 5 mm. longum, hirtum; antheræ 14, globosæ.

Camp VI *a*, 3100 ft., and Camp VI *b*, 3900 ft.

This is allied to *N. neo-guineensis*, but has a distinct keel and a short process in the upper part of the operculum resembling that of *N. maxima*, but much smaller. The glands of the operculum, too, are much smaller than those of *N. neo-guineensis*, and there are no ciliate ridges on the pitchers as in that species; the form of the leaves, too, is peculiar, the blade dilating rather abruptly from a winged petiole into an oblanceolate form, widest towards the top, then suddenly narrowing into the tendril. The pitchers appear to have been green, stained above and on the lid with purple.

NEPENTHES MAXIMA, Reinwardt apud Nees, in Ann. Sc. Nat. Sér. I. iii. (1824) 369, t. 20. fig. 2.

Camps VI *a*, 3100 ft.; VI *c*, 5500 ft.; and IX to XI, 5500 to 8300 ft.

Distrib. Endemic in New Guinea.

NEPENTHES KLOSSII, Ridl., sp. nov.

Folium oblongum vel lanceolatum, ad petiolum abrupte angustatum, 25 cm. ad 31 cm. longum, 9 cm. latum, superne dense rufo-hirtum (præsertim in costa), subtus flavescens, costa immersa hirta excepta, glabra, costa in facie superiore valida

elevata, nervis 3 prope margines sitis, petiolo anguste alato 5 mm. crasso, cirrho 30 cm. longo valido 3–4 mm. crasso hirto, ad ascidiam incrassato. *Ascidia* ascendentia, infundibuliformia, curva, hirsuta, 27 cm. longa, 7 cm. lata, intus ad basin per 4–10 cm. lævia, polita, glandulis parvis copiosissimis, superne purpureo glaucescentia; peristomium 2–5 mm. latum, costis angustis approximatis; calcar apice furcatum, 1 cm. longum, dense hirtum, carinis vix elevatis haud ciliatis; operculum ovatum, obtusum, 5–7 cm. longum, 4·5–5 cm. latum, extus hirsutum, intus glabrum, purpureum, glandulis circularibus magnis marginibus elevatis dense tectum, carina valida glandulis maximis oblongis obsita; processu conico ad basin complanato superne furcato pallido. *Flores* non visi. *Pedunculus* sub fructu 18 cm. longus, hirtus. *Racemus* 14 cm. longus, pedicellis 1 cm. longis hirtis 1–3-floris. *Sepala* oblonga, obtusa, subæqualia, 3 mm. longa, 1 mm. lata, extus hirta, intus glabra, glandulosa. *Capsula* 1·5 cm. longa, basi angustata, ad apicem paullo angustata, extus rufo-hirta. *Stigma* magnum, 8-lobum, lobis obtusis recurvis.

Camps VI *a* and VI *b*, 3100 to 3900 ft.

This splendid species resembles *N. maxima*, Reinwardt, but is distinct in its hairiness. The pitchers have much the shape of the upper ones of *N. Rafflesiana*, Jack. The operculum is of a deep purple, the colour of the rest I do not know.

PIPERACEÆ.

Peperomia muscicola, Ridl., sp. nov.

Caulis gracilis, ascendens, ramis 2–5 cm. longis hirtis. *Folia* alterna, elliptica vel orbicularia, rotundata, basi lata, rotundata, vel breviter cuneata, 1–3 cm. longa, 0·7–2 cm. lata, hirta, sicca flavescentia, subtus pallidiora, nervis 3–5 e basi ortis subtus conspicuis, petiolo brevi. *Spicæ* terminales vel axillares, 2·5 cm. longæ, fere 1 mm. crassæ, pedunculis 1 cm. longis. *Bracteæ* peltatæ, orbiculares, punctatæ. *Pistillum* ovoideum, rugosum, stylo brevi crasso stigmatibus erectis 2 divaricatis. *Drupa* ovoidea, ad apicem paulo angustatum.

Camp I, 500 ft.

Of the habit of *P reflexa*, Dietr., but with alternate larger leaves.

Peperomia purpurea, Ridl., sp. nov.

Caulis ascendens, 5·5 cm. altus, hirtus. *Folia* alterna, obovata, obtusa, basi cuneata, utraque facie hirta, 1 cm. longa, 4 mm. lata, petiolis gracilibus 5 mm. longis. *Spicæ* terminales, pedunculis gracilibus 5 mm. longis, glabræ, 2 cm. longæ, gracillimæ. *Bracteæ* orbiculares, peltatæ. *Antheræ* ellipticæ. *Pistillum* ovoideum, stylo nullo, stigmate capitato.

Camps I to III, 500 to 2500 ft.

"Leaves deep red-brown beneath. Flowers purplish brown." Allied to the last species, but the leaves with smaller and much thinner blades and a longer petiole.

PEPEROMIA HEDYOTIDEA, Ridl., sp. nov.

Caules erecti, 9–15 cm. longi, internodiis 1 cm. longis basi nudis succulentis, in sicco fusci. *Folia* opposita, lanceolato-linearia, ad apices et bases angustata, acuta, 2 cm. longa, 3 mm. lata, paucis pilis in pagina superiore exceptis glabra, subtus pallida. *Spicæ* axillares et terminales, erectæ, 2 cm. longæ, glabræ, pedunculo 5–10 mm. longo. *Bracteæ* peltatæ, orbiculares. *Ovarium* conicum, rostratum.

Camp III, 2500 ft.; Camps VI *b* and VI *c*, 3900 to 5500 ft.

A curious species with narrow opposite leaves, and the habit of one of the small species of Rubiaceæ.

PEPEROMIA OBLIQUA, Ridl., sp. nov.

Herba succulenta, ultra 15 cm. alta. *Folia* alterna, 1 cm. remota, lanceolata, obliqua, ad basin breviter angustata, 2·5 cm. longa, 1 cm. lata, glabra, succulenta, subtus pallida, costa in dorso lata, nervis gracilibus 6, petiolis 4 mm. longis. *Spicæ* axillares, 2 cm. longæ, crassiusculæ, siccæ 1 mm. crassæ. *Bractea* orbicularis, peltata, carnosa. *Ovarium* conicum.

Camps IX to XI, 5500 to 8300 ft.

Species near *P. dindygulensis*, Miq., but smaller in all parts.

PIPER (§ CHAVICA) GRANDE, Ridl., sp. nov.

Herba magna. *Folia* ovata, cordata, acuta, basi lobis latis inæqualibus obtusis, majore 6 cm. longo, glabra, subtus pallida, minute nigro-punctata, 24 cm. longa et æque lata, nervis 14 e sinu ascendentibus, 3 mediis ad basin connatis, petiolis validis 3–5 cm. longis. *Spica* elongata, 28 cm. longa, 4–7 mm. lata, cylindrica, in pedunculo crassiusculo 5–15 mm. longo. *Bracteæ* peltatæ, orbiculatæ, undulatæ, medio depressæ, irregulariter angulatæ. *Drupæ* obovoideæ, stylo brevi. *Semen* triquetrum, obovoideum.

Canoe Camp, 150 ft., and Camp I, 500 ft.

Allied to *P. torricellensis*, Lauterb., but the leaves are glabrous and the midrib is not twice bifid.

PIPER QUINQUENERVIUM, Warb. in Engl. Bot. Jahrb. xiii. (1891) 284.

Camp I, 500 ft.; Camp VI *a*, 3100 ft.

Distrib. Endemic in New Guinea.

PIPER MINIATUM, Blume, in Verh. Bat. Gen. xi. (1826) 166.

Camp VI *b*, 3900 ft.

Distrib. Malaya.

PIPER (EUPIPER) MALACOCARPUM, K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 259.

Canoe Camp, 150 ft.

PIPER (§ EUPIPER) PUNCTICULATUM, Ridl., sp. nov.

Caulis gracilis. *Folia* ovata, acuminata, acuta, vix cordata, basi inæqualiter rotundata, 11 cm. longa, 7 cm. lata, tenuiter coriacea (sicca viridescentia), dorso pallidiora, glabra, minute glanduloso-puncticulata, nervis 6 pilis albescentibus tectis e basi ortis, petiolis 7 mm. longis. *Spicæ* masculæ cylindricæ, obtusæ, 2–2·5 cm. longæ, 2 mm. crassæ, aurantiacæ, pedunculis 7 mm. longis. *Bracteæ* peltatæ, suborbiculares, marginibus undulatis. *Stamina* 2.

Camp VI *a*, 3100 ft.

This species has something of the habit of *Piper Betle*, Linn., but the leaves are thinly and rather stiffly coriaceous with prominent nerves deeply sunk above, and pubescent beneath. Female flowers and fruits are wanting, but I take it to be one of the *Eupiper* section.

PIPER PLAGIOPHYLLUM, K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 260.

Camp VI *b*, 3900 ft.

Distrib. Endemic in New Guinea.

PIPER (§ CHAVICA) MONTIVAGUM, Ridl., sp. nov.

Caulis succulentus. *Folia* ovata, cordata, basi inæqualiter biloba lobis rotundatis, apice acuminato-cuspidata, 11–9 cm. longa, 7·5–8·5 cm. lata, glabra, juvenilia hirta, nervis 6 e basi radiatis, petiolis 2–2·5 cm. longis exalatis. *Pedunculus* 0·5–1 cm. longus. *Spica* 1–3 cm. longa, 3–5 mm. crassa, matura. *Bracteæ* oblongæ, peltatæ. *Pistillum* conicum, stylo brevissimo; stigmatibus decurvis brevibus.

Camps IX to XIII, 5500 to 10,500 ft.

Somewhat resembling *P. excelsa*, Forst., and *P. fragile*, Blume.

The young leaves are hairy on the back, with adpressed hairs which appear to remain on some leaves till fully expanded, yet the adult leaves are at length glabrous.

The specimens from Camps XI to XIII, at 8300 to 10,500 ft. elevation, have more fleshy and succulent leaves, stiffer when dry.

CHLORANTHACEÆ.

CHLORANTHUS OFFICINALIS, Blume, Enum. Pl. Jav. 79.

Camps I to III, VI *a* and VI *b*, 500 to 3900 ft.

Distrib. North India, China, Malay Peninsula, and Malay Islands.

MYRISTICACEÆ.

MYRISTICA FATUA, Houtt. Handleid. iii. 337.

Canoe Camp, 150 ft.

In fruit only, Nov. 1912. "The fruit dark yellowish brown."

Distrib. Endemic in New Guinea.

The specimens are rather incomplete, but it appears to be this species.

Myristica subalulata, Miq. Ann. Mus. Lugd.-Bat. ii. 47.

Canoe Camp, 150 ft.

"Flowers yellowish white. Fruit blood-red or brownish yellow."

Distrib. British and Dutch New Guinea.

MONIMIACEÆ.

Anthobembix hospitans, Perk. in Engl. Bot. Jahrb. xxv. (1898) 567.

Camps III, 2500 ft., and VI *a* to VI *b*, 3100 to 3900 ft.

Distrib. Endemic in New Guinea.

Palmeria paniculata, Ridl., sp. nov.

Scandens ? caule hirto. *Folia* opposita, paribus 8 cm. distantibus, elliptica, acuminata, basi rotundata, 12 cm. longa, 5 cm. lata, glabra, costa superne depressa hirta inferne cum nervis hirta, nervis 5-paribus remote a marginibus anastomosantibus, petiolis 5 mm. longis hirtis. *Paniculæ* axillares, 32 cm. longæ, laxæ, ramis paucis 6 cm. longis patentibus, ramulis brevibus undique hirtis. *Bracteæ* lineares, 2 mm. longæ, hirtæ. *Flores masculi* 4 mm. lati, lobis 4 ovatis apice acuminatis incurvis undique hirtis. *Receptaculum* nullum. *Stamina* circiter 20 in tubo dissita, filamentis nullis, antheris minutis.

Camp VI *c*, 5500 ft.

I have seen no female flowers of this species, which differs from the others described from New Guinea and Australia in the elongate panicle, the larger flowers, and the hairiness of the stems, nerves, petioles, and inflorescences. It seems most nearly allied to *P. scandens*, F. von Muell.

Trimenia papuana, Ridl., sp. nov.

Arbor ? ramis quadrangulatis brunneis. *Folia* opposita, coriacea, lanceolata, acuminata, obtusa, basi cuneata, in marginibus obscure serrata, 5 cm. longa, 2 cm. lata, costa prominula, nervis 17–18-jugis gracilibus, petiolis 1 cm. longis. *Racemi* axillares, 1 cm. longi, et terminales, ramosi, 4 cm. longi, rhachi quadrangulata. *Pedicelli* crassi, 1 mm. longi. *Racemuli* conici, obtusi, 4 mm. longi, receptaculo cylindrico, bracteis cartilagineis brunneis 10 ovatis rotundatis marginibus minute ciliatis, inferioribus 2 mm. longis, superioribus 5 spathulatis cucullatis angustioribus. *Flores* hermaphroditi. *Stamina* 15, filamentis brevibus linearibus, apiculo longiusculo. *Pistillum* crassum, cylindricum, stigmate cum costis 8 ex apice decurrentibus.

Camp VI *b*, 3900 ft.

The only other species of this genus, *Trimenia vitiensis*, is a native of the Fiji Islands. It resembles this species in many respects, but the flowers are unisexual. In *T. papuana* the flowers are apparently all bisexual, and the filaments and the appendage of the stamens are longer than in *T. vitiensis*. There are 15 stamens, and the stigma consists of eight radiating ridges or keels running downwards from the apex of the pistil.

This is a very interesting addition to the flora of New Guinea.

PROTEACEÆ.

HELICIA WOLLASTONII, Ridl., sp. nov.

Folia alterna, coriacea, obovata, cuspidata cuspide obtuso 2 cm. longo ad basin 2 mm. lato, basi elongato-acuminata, 15 cm. longa, 7 cm. lata, nervis 6–7 paribus superne depressis, subtus elevatis 7 mm. a margine anastomosantibus, petiolo subgracili basi incrassato 2 mm. longo dorso convexo ad apicem alato. *Racemus* gracilis, laxiflorus, 15 cm. longus, floribus dissitis solitariis vel per paria dispositis, pedicellis 0·5 mm. longis gracilibus. *Bracteæ* minutæ, lanceolatæ, acutæ. *Perianthium* 1·5 cm. longum, glabrum, segmentis linearibus angustis, limbo 2 mm. longo ovato obtuso. *Stamina* breviora, antheris oblongis appendicibus minutis. *Stylus* filiformis, 1·5 cm. longus. *Stigma* clavatum. *Ovarium* conicum, glabrum.

Canoe Camp, 150 ft.

Near *H. macrostachya*, Laut., but with shorter racemes and distinctly petiolate leaves; also allied to *H. grandifolia*, Laut. (not of Lecomte), but the leaves are smaller and long-petioled, the pedicels longer, and the flowers glabrous. The anthers appear to open and to shed their pollen in bud. From *H. macrostachya*, Laut. it differs in the shorter raceme and the longer petiole.

THYMELÆACEÆ.

PHALERIA PAPUANA, Warb. ex K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 460.

Camp VI *a*, 3100 ft.

There seem to be two forms of this plant—one with lanceolate rounded leaves, the other with narrower long acuminate leaves.

Distrib. Endemic in New Guinea.

GYRINOPS SALICIFOLIA, Ridl., sp. nov.

Arbor virgata. *Folia* alterna, coriacea, anguste lanceolata, apice acuminata, basi angustata, 4·5–10 cm. longa, 4–10 mm. lata, nervis plurimis tenuissimis parallelis, petiolis 2 mm. longis. *Flores* parvi in fasciculis terminalibus et axillaribus, pedunculis ciliatis, sericeis, pedicellis 1 mm. longis. *Perianthii tubus* longus, campanulatus, pubescens, lobis 5 oblongis obtusis recurvis sericeis. *Antheræ* in ore tubi sessiles, oblongæ, glabræ, exsertæ, lobis oppositæ. *Squamæ* liberæ, antheris alternantes hirtæ, oblongæ, obtusæ. *Discus* hypogynus nullus. *Ovarium* cylindricum, ellipsoideum, pubescens, biloculare, ovulo uno in utroque loculo. *Stylus* cylindricus, hirtus. *Stigma* parvum.

Camp I, 700 ft.

The genus *Gyrinops* at present includes one well-known Ceylon species and one from Buru Island in the Moluccas. From these this species differs in its smaller flowers, narrow willow-like foliage, and in the scales of the perianth-tube, which are smaller and do not form a conspicuous ring. The perianth-tube has the shape of that of *Aquilaria*, being short and dilated, not elongate and cylindric.

LORANTHACEÆ.

Loranthus longiflorus, Desr. in Lam. Encycl. iii. 598.

Camp III, 2500 ft.

Distrib. Timor.

Loranthus diversifolius, Ridl., sp. nov.

Folia opposita, ovata vel lanceolata, obtusa vel acuta, basi angustata, 4·5 cm. longa, 1·5–3 cm. lata, coriacea, glabra, nervis 3 inconspicuis e basi ortis. *Flores* 3 in axillis siti, pedunculo 1 mm. longo, pedicellis 2 mm. longis. *Bractea* cupuliformis, limbo lanceolato. *Calyx* cylindricus, ad basin paullo angustatus, ad apicem dilatatus, 3 mm. longus, margine undulato vix lobato. *Petala* 4 linearia, ad apicem vix dilatata, obtusa, 3 cm. longa, 2 mm. lata. *Alabastrum* cylindricum, obtusum, vix dilatatum. *Filamenta* linearia.

Camps III to IX, 2500 to 5500 ft.

Allied to *L. Lauterbachii*, K. Schum., but the leaves are smaller and the petals wider.

Loranthus hastifolius, Ridl., sp. nov.

Caules lignosi. *Folia* coriacea, ovata, lanceolata, longe acuminata, ad basin breviter angustata, 9 cm. longa, 3·5 cm. lata, nervis 5 e basi ortis, petiolis crassis paullisper ad bases dilatatis 3 mm. longis. *Flores* plures. *Bractea* lanceolata, obtusa, pubescens, calycis dimidio æqualis. *Calyx* infundibuliformis, 3 mm. longus, margine integro pubescente. *Corolla* glabra, 3 cm. longa, lobis 4 linearibus subacutis, 1 cm. longis vix 1 mm. latis. *Stamina* breviora, gracilia, filamentis complanatis, antheris æquilongis.

Camps VII to VIII, 3600 to 4900 ft.

SANTALACEÆ.

Henslowia Reinwardtiana, Blume, Fl. Jav. i. xviii., and Mus. Bot. Lugd.-Bat. i. 244.

Camp I, 700 ft.

Distrib. Malay Archipelago.

Henslowia nivalis, Ridl., sp. nov.

Frutex erectus, ramis rugosis superne angulatis. *Folia* crassa, coriacea, obovata vel orbicularia, apice rotundata, basi angustata, 10·5 mm. longa, 9·4 mm. lata, petiolo crasso 1 mm. longo vel subnullo. *Flores* in cymis brevissimis axillaribus vel solitarii, bracteis pluribus ovatis acutis ciliatis. *Perianthii* lobi 4 (rarius 5), triangulares, acuti, 1 mm. longi, ad basin connata. *Stamina* 4, filamentis subplanis basi latis superne angustioribus, antherarum loculis oblongis ellipticis. *Stigma* globosum sessile. *Drupa* ampulliformis, 5 mm. longa, ad basin 3 mm. lata, lobis perianthii coronata.

Camp XIII, 10,500 ft.

A curious little dwarfed species drying black, perhaps most nearly allied to *H. Reinwardtiana*, Blume.

BALANOPHORACEÆ.

BALANOPHORA OOSTERZEEANA, Val. in Nova Guinea, viii. 919, fig. 161.

Female specimens, rather young, but apparently belonging to this species, are in the collection.

EUPHORBIACEÆ.

ANTIDESMA CONTRACTUM, J. J. Sm. in Nova Guinea, viii. II. 229, fig. 56.

Canoe Camp, 500 ft.; Camp III, 2500 ft. "Fruit dull crimson."

Distrib. Endemic in New Guinea.

CODIÆUM STELLINGIANUM, Warb. in Engl. Jahrb. xiii. (1891) 353.

A male specimen only, but the description of this species agrees very well with it. I have seen no type.

Locality not recorded.

Distrib. Endemic in New Guinea.

HOMALANTHUS LESCHENAULTIANUS, Juss. Tent. Euph. 50, t. 16.

Camps VI *a* and VI *b*, 3100 to 3900 ft.

Distrib. Indo-Malaya.

HOMALANTHUS NOVO-GUINEENSIS, K. Schum. Fl. Deutsch. Schutzg. Südsee, 407.

Camp VI *a*, 3100 ft.

Distrib. Endemic in New Guinea.

MACARANGA NOVA-GUINEENSIS, J. J. Sm. in Nova Guinea, viii. IV. 789, t. 138.

Canoe Camp, 170 ft.

Fruiting specimens only, but apparently this plant. The bristles of the fruit are pink.

Distrib. Endemic in New Guinea.

MACARANGA RIPARIA, Engl. in Bot. Jahrb. vii. (1886) 463.

Canoe Camp, 500 ft., and at Camp I, 700 ft. "Pale olive-green leaves, purplish beneath."

Distrib. Endemic in New Guinea.

MACARANGA ACUMINATA, Ridl., sp. nov.

Arbor ramis gracilibus pubescentibus. *Folia* membranacea, subpeltata, lanceolata, longe acuminata, basi cuneata obtusa, 9–12 cm. longa, 4–4·5 cm. lata, superne (sicca) grisea costa excepta glabra, subtus copiose glandulosa, nervorum paribus ad 8 elevatis intra margines anastomosantibus, cum costa et reticulationibus hirtis, depressionibus 2 ad basin folii sitis subtus gibbosis, petiolo 4 cm. longo pubescente. *Paniculæ* axillares, pubescentes, masculi 7 cm. longi, basi per 3 cm.

nudæ, ramis 1 cm. longis patentibus. *Flores* dense congesti in spicis 6 mm. longis; bracteæ lanceolatæ vel bidentatæ vel tridentatæ, pubescentes, 2 mm. longæ. *Flores masculi* brevissime pedicellati. *Sepala* 4, pubescentia, oblonga, obtusa. *Stamina* 4, æquilonga, filamentis crassiusculis loculis 4. *Racemi* feminei graciles, 9–11 cm. longi, pubescentes, pauciflori. *Bracteæ* ovatæ, dentatæ, 4 mm. longæ et latæ, dense flavo-glandulosæ. *Ovarium* subglobosum, dense glandulosum. *Styli* oblongi in unam massam dense bracteis tectam congesti. *Capsula* globosa, atra.

Camp VI *a*, 3100 ft. "Flowers greenish yellow." Also in Kaiser Wilhelmsland (Hollrung, 330 & 600, in Herb. Kew.).

This was apparently identified erroneously by Schumann as *Mallotus acuminatus*, Miq. Warburg perceived it was a *Macaranga* and wrote it up on a ticket *Macaranga acuminata*, but he does not seem to have described it.

Macaranga ovalifolia, Ridl., sp. nov.

Rami validi, glabri. *Folia* ovata, cuspidata, basi cordata vel rotundata, margine undulata, 16–18 cm. longa, 13–14 cm. lata, superne glabra, polita, subtus glaucescentia, copiose glandulosa, nervis 8 paribus ascendentibus, nervulis parallelis pubescentibus, marginibus ad basin prope petiolum incrassatis et sursum curvis, petiolis 7–8 cm. longis teretibus glabris. *Spicæ* masculæ graciles, 11–14 cm. longæ, simplices vel ramis 1–2 pubescentibus. *Flores* in glomerulos parvos dissitos 3 mm. longos dispositi; bracteæ oblongæ, lanceolatæ, papyraceæ, rufescentes, 1 cm. longæ, caducæ, superiores breviores, ovatæ; bracteolæ breves, late ovatæ, hirtæ. *Flores* brevissime pedicellati. *Sepala* 4, oblonga, obtusa, glabra. *Stamina* 3, filamentis paullo longioribus, antheris 4-locularibus.

Camps I to III, 700 to 2500 ft.

This is certainly allied to *M. bifoveata*, J. J. Sm., but the leaves are larger and less hairy, and it has 4 (not 3) sepals, and 3 (not 7) stamens which are much shorter. The base of the leaf close to the petiole and on each side of it is curled up on the front side—as it were, pinched up, but it does not form the remarkable pubescent pockets which are characteristic of Smith's species. The bud-sheath, 4 cm. long, is glandular and hairy.

URTICACEÆ.

Gironniera rhamnifolia, Blume, Mus. Bot. Lugd.-Bat. ii. 74.

Camps I to III, 500 to 2500 ft.

Distrib. Endemic in New Guinea.

Ficus ochrochlora, Ridl., sp. nov.

Frutex. *Folia* ovata, acuta, cuspidata, versus apicem et basin paullo angustata, 15 cm. longa, 8 cm. lata, superne glabra, subtus in nervis 8 paribus et nervulis appresse hirta, petiolis 1·5 cm. longis. *Stipulæ* lanceolatæ, acuminatæ, hirtæ. *Receptacula* in axillis sessilia, bracteis ovatis mucronatis glabris suffulta, globosa,

1 cm. longa vel majora, ochreo-viridia, parce pubescentia, intus hirta; bracteæ ostii plures, lanceolatæ, acutæ, glabræ. *Flores masculi* desunt. *Flores feminei*: *Sepala* 3, oblonga, obtusa, glabra. *Pistillum* ovoideum, pedicellatum, roseum, stylo brevi.

Canoe Camp, 150 ft.

Allied to *F. hirta*, Vahl, but the leaves are very different and the sepals of the female flower three only. The pedicel of the pistil has a few hairs at the base. The gall-ovary is ovoid-elliptic, smooth.

FICUS (§ COVELLIA) OVALIFOLIA, Ridl., sp. nov.

Ramus crassus, setosus. *Folia* maxima, ovata, cordata, serrata, membranacea, 32 cm. longa, 30 cm. lata, supra sparse breviter hirta imprimis in nervis, subtus in nervis et reticulationibus hirta, nervis e basi radiantibus costa inclusa 5, nervis superne e costa ortis 7–8 paribus, nervulis parallelis, petiolis 8–16 cm. longis validis hirtis. *Stipulæ* oblongæ, obtusæ, glabræ, membranaceæ, 3·5 cm. longæ, 7 mm. latæ. *Receptacula* in ramis longis crassis tenuiter ramulosis hirtis prostratis fasciculata, bracteis caducis ovatis acuminatis glabris 5 mm. longis suffulta, adulta pyriformia, 1 cm. longa, 6 mm. crassa, glabra, ad osteolum squamis erectis coronata, breviter pedicellata; bracteolæ ad basin 3, ovatæ. *Squamæ* ostioli superiores orbiculares, peltatæ, inferiores ovatæ, acutæ, deflexæ, majusculæ. *Receptaculum* intus albo-hirsutissimum. *Flores feminei*: *Sepala* 4, spathulata, glabra, ovario æquilonga. *Pistillum* ovoideum vel rhomboido-ovoideum compressum, sessile, stylo longo laterali, stigmate obliquo. *Achænia* rubra, lævia.

Canoe Camp, 170 ft. New Guinea, without precise locality (Lauterbach 171, in Herb. Kew.).

This remarkable species is allied to *F. Vrieseanus*, Miq., from which it differs in its large ovate-cordate serrulate leaves, its shorter-pedicelled figs, densely white hairy within, its perianth of four spathulate narrow lobes, and sessile achenes. The large peltate scales in the mouth of the fig and the hairy inside of the receptacle are very unusual characters.

FICUS (§ COVELLIA) TURBINATA, Ridl., sp. nov.

Arbor glabra, ramis castaneis gracilibus infra nudis. *Folia* alterna, ovata, tenuiter coriacea, elliptica, subacuta vel obtusa, integra, ad basin paullo angustata, 8 cm. longa, 3·5 cm. lata, nervis 7 paribus, petiolis 1·2–1·5 cm. longis. *Stipulæ* lanceolatæ, acuminatæ. *Receptacula* axillaria, bracteis minutis ovatis amplexicaulibus suffulta, turbinata, 0·5 cm. longa, 0·7 cm. lata, in medio latissima, versus basin angustata, glabra, pallida, pedunculis gracilibus 5 mm. longis furfuraceo pubescentibus; bracteæ ostii ovatæ, obtusæ, glabræ. *Flores* masculi cum femineis mixti. *Flores masculi*: *Sepala* 3, ovata, oblonga, incurva. *Stamina* 6. *Flores feminei* sessiles: *Perianthium* nullum. *Ovarium* subovoideum, stylo brevi erecto.

Canoe Camp, 150 ft.

Ficus Decaisnei, Steud. Mon. Ed. ii. 163.
Canoe Camp with the last.
Distrib. Timor.

Antiaropsis decipiens, K. Schum. Flora von Kaiser Wilhelmsland, 40.
Camp I, 700 ft., also Camp III, 2500 ft., and Camp VI *a*, 3100 ft.
Distrib. Endemic in New Guinea.

Conocephalus nobilis, Ridl., sp. nov.

Frutex (?) scandens. *Folia* magna, oblanceolata, versus apicem latissima, breviter cuspidata, basi angustata, obtusa, glabra, coriacea, subtus pallida, 70 cm. longa, 25 cm. lata, nervis 19 paribus prope marginem anastomosantibus, nervulis transversis parallelis, petiolis 4–20 cm. longis. *Panicula* mascula subglobosa, compacta, 5 cm. longa, 9 cm. lata, pedunculo 4·5 cm. longo hirto pubescente, ramis hirte pubescentibus; bracteæ ovatæ, oblongæ, 1·5 cm. longæ, 1 cm. latæ. *Flores* copiosi, albi. *Sepala* 4, oblonga, obtusa. *Stamina* 4, filamentis latis complanatis carinatis, antheris ellipticis. *Pistillodium* complanatum, apice dilatatum.

Canoe Camp, 150 ft., Camp I, 500 ft.

"Flowers white on a pale crimson base."

Allied to *C. suaveolens*, Blume, but the leaves are oblong and white beneath and the inflorescence is much bigger and more branched.

Laportea glabra, Ridl., sp. nov.

Folia subherbacea, glabra, subpeltata, oblanceolata vel obovata, cuspidata, basi angustata obtusaque, undulata, 22–28 cm. longa, 11 cm. lata, nervis 9 paribus, cystolithis nullis, petiolis 3·5 cm. longis. *Panicula* feminea infra folia orta, laxa, ramis gracilibus 3 cm. longis, 9 cm. longa, glabra, floribus parvis viridibus glomeratis; pedicelli breves, crassi. *Perianthium* cupuliforme, glabrum, apice in uno latere trilobo, lobis brevibus subacutis medio longiore. *Ovarium* complanatum, ovoideum. *Stylus* breviusculus, curvus. *Flores masculi* non visi.

Canoe Camp. "Flowers green."

This species belongs to the section in which the sepals are connate into a one-seeded cup. This covers half of the achænium, and bears two short teeth on the longer side. I can see no trace of a fourth tooth.

Laportea crenulata, Gaud. Bot. Freyc. Voy. 498.
Canoe Camp.
Distrib. Indo-Malaya.

Pilea rubiacea, Ridl., sp. nov.

Suffrutex ascendens, ramosa, virgata, internodiis 3 mm. longis. *Folia* linearia, acuta, ad apices lobata vel integra, carnosa, glabra, 1 cm. longa, 2 mm. lata, cystolithis paucis linearibus, costa valida, nervis obscuris, petiolis crassis brevibus.

Stipulæ minimæ, lineares, basi latæ integræ. *Flores masculi* non visi. *Flores feminei* singuli in pedicellis gracilibus 1 mm. longis. *Sepala* 3, oblonga, obtusa. *Staminodia* 3, opposita, longiora, oblonga, obtusa. *Achænia* orbicularia, ovata, apiculata, pustulata, flavescentia, stylo parvo pustulato.

Camps IX to XI, between 5500 and 8300 ft.

A very curious plant, with the general appearance of a *Hedyotis*.

Pilea smilacifolia, Wedd. in Ann. Sc. Nat. sér. 4, i. (1854) 186, var. serrata, Wedd. Monogr. des Urticées, 181.

Camps VI *b*, 3900 ft.; VI *c*, 5500 ft.; VIII to XI, 4900 to 8300 ft.

Distrib. India and Malaya.

Pilea trinervia, Ridl., sp. nov.

Herba parva, ramosa, 8 cm. alta vel altior. *Folia* opposita, lanceolata, oblanceolata vel obovata, apice subacuta, basi inæquilateralia lobo uno rotundato, margine crenulata, 1 cm. longa, 5 mm. lata, superne atro-viridia, cystolithis plurimis irregulariter sparsa, subtus pallida, nervis e basi ortis 2 marginibus parallelis, e costa ascendentibus 3 paribus, petiolis 1 mm. longis sulcatis. *Stipulæ* laciniatæ, laciniis pluribus lanceolatis subulatis rufescentibus. *Flores masculi* 3–4, pedunculo axillari 2 mm. longo, pedicellis brevibus; bracteæ lanceolatæ. *Sepala* oblonga, apice obtusa, incurva, atroviridia, 2 mm. longa. *Stamina* 4, filamentis crassis rubris, sepala superantibus. *Antheræ* oblongæ, majusculæ, albæ. *Flores feminei* desunt.

Camps XI to XII, 8300 to 11,000 ft.

Distinguished by its 3-nerved leaves, two nerves running from the base parallel with the margins, and nearly parallel with the midrib. The flowers are not solitary as they are in most of the other species, but racemose on short peduncles.

Pilea helxinoides, Ridl., sp. nov.

Herba ramosa, perennis, 6 cm. longa, glabra. *Folia* opposita, carnosa, approximata, ovata, obtusa, basi angustata, subsessilia, 2 mm. longa, cystolithis copiosis. *Stipulæ* minutæ, lineares. *Flores masculi* singuli vel bini, axillares; bracteæ 2, minutæ, lanceolatæ. *Pedicelli* pallidi, 5 mm. longi. *Perianthium* campanulatum, lobis ovatis ad basin connatis obtusis 1 mm. longis pallidis apice viridibus. *Stamina* 4, filamentis linearibus complanatis. *Sepala* multo longiora. *Antheræ* cordatæ, hastatæ. *Pistillodium* minutum.

Camp XIV, 12,500 ft. Flowers greenish white.

Allied to *Pilea Johniana*, Stapf, of Mt. Kinabalu in Borneo, differing in the always 4-partite pedicellate male flowers and the long stamens. The very slender stem is dotted all over with longitudinal white lenticels. The leaves are also larger.

Pilea alpestris, Ridl., sp. nov.

Fruticula, ramis lignosis 2 mm. crassis nodosis. *Folia* opposita, congesta, crasse coriacea, ovata vel elliptica, obtusa, sessilia, 3–5 mm. longa et lata, costa utrinque depressa, nervis obscuris, cystolithis linearibus copiosis radiantibus. *Stipulæ* 2, membranaceæ, rufæ, ovatæ, acutæ, denticulatæ, 1 mm. longæ. *Flores masculi* singuli, axillares, bracteis stipuliformibus 2 lanceolatis denticulatis; pedicelli graciles, 3 mm. longi. *Perianthium* campanulatum, ferme 2 mm. longum, ad basin in lobos 4 ovatos obtusos fissum, coriaceum. *Stamina* 4, multo longiora, filamentis linearibus complanatis, antheris tenuibus ellipticis rotundatis albescentibus. *Flores feminei* non visi.

Camp XII, 10,500 ft.

The most shrubby of any *Pilea* I have seen, the habit being that of one of the small *Vaccinia* with quite woody stems and branches and densely crowded thick fleshy coriaceous leaves.

Pilea thymifolia, Ridl., sp. nov.

Fruticulus repens, ramis tenuibus vix 1 mm. crassis nodosis. *Folia* congesta, opposita, crasse carno-coriacea, oblonga, 2 mm. longa, obtusa, sessilia, cystolithis plurimis radiantibus, costa subtus depressa superne obscura. *Stipulæ* 2, minutæ, membranaceæ, rufescentes, lanceolatæ, denticulatæ. *Flores masculi* singuli, axillares, subglobosi, 2 mm. longi, pedicellis 0·15 mm. longis. *Sepala* 4, ad basin connata, obtusa, crassiuscula. *Stamina* 4, filamentis linearibus longioribus, antheris ovatis cordatis. *Pistillodium* minutissimum, conicum. *Flores feminei* desunt.

Camps XIII to XIV, 10,500 to 12,500 ft.

This small shrubby creeping species differs from *P. alpestris* in the much smaller leaves and stems and rather larger flowers. The leaves possess large numbers of cystoliths, all arranged in a radiating manner, pointing from the base towards the apex along the edge of the leaf at the tip, and occasionally irregularly scattered; on the underside are circular black depressions. (There are traces of these in *P. alpestris*.)

These three species *P. helxinoides*, *P. alpestris*, and *P. thymifolia*, with *P. Johniana*, Stapf, might possibly constitute a distinct genus. The plants seem to be always unisexual, and the male flowers always solitary with the parts in fours.

Lecanthus Wightii, Wedd. in Ann. Sc. Nat. sér. 4, i. (1854) 187.

Camps VIII to IX, 4900 to 5500 ft.

Distrib. Tropical Africa, India, and Java.

Pellionia fruticosa, Ridl., sp. nov.

Fruticulus, ramis flexuosis. *Folia* alterna, subcoriacea, elliptica, obtuse acuminata, basi obtusa, inæquilateralia, margine undulata, 9 cm. longa, 3·5 cm. lata, nervis 10 paribus superne inconspicuis subtus elevatis brunneis, cystolithis parvis copiosis, petiolis 8 mm. longis. *Panicula* mascula axillaris, 10 cm. longa, ramis patentibus 5 cm. longis plurifloris, pedunculo angulato rufo-brunneo 4 cm. longo. *Flores* 2 mm. longi, 3 mm. lati, pedicellis 1 mm. longis. *Sepala* 5, imbricata, oblonga, obtusa,

2 exteriora angustiora, crassiuscula, interiora 3 latiora dorso crassiora marginibus tenuibus bullatis. *Stamina* 5, filamentis sepalis æquilongis rubris marginibus tenuibus pallidis dimidio inferiore sepalis adnatis, antheris oblongis cordatis loculorum basibus divaricatis.

Camp VI *a*, 3100 ft.

A very distinct woody species, somewhat resembling an undescribed plant obtained in Borneo by Beccari.

PELLIONIA PELTATA, Ridl., sp. nov.

Herba elata, ultra 15 cm. alta. *Folia* alterna, ovata, peltata, obliqua, longe acuminata, glabra, 21 cm. longa, 10 cm. lata, nervis 3 e basi ortis, petiolis 4 cm. longis. *Cymæ* axillares, paniculatæ, 3–6 cm. longæ, floribus in apice ramorum congestis. *Flores masculi* subsessiles, bracteis minutis lanceolatis acuminatis. *Sepala* 5, oblonga, obtusa. *Stamina* 5, filamentis vix longioribus complanatis, antheris cordatis, loculorum basibus divaricatis. *Pistillodia* parva, erecta, cylindrica. *Flores feminei* in eadem planta, multo minores, pedicellis gracilibus 2 mm. longis. *Sepala* 5, parva, oblonga, obtusa. *Staminodia* paullo longiora, oblonga, obtusa. *Pistillum* ovoideum. *Achænium* 1 mm. longum, obovoideum, lenticulatum, rubrum.

Canoe Camp, 150 ft.; Camp I, 700 ft.

PELLIONIA NIGRESCENS, Warb. in Engl. Bot. Jahrb. xiii. (1891) 291.

Canoe Camp, 150 ft.

Distrib. Endemic in New Guinea.

ELATOSTEMA SESSILE, Forst. Char. Gen. 106.

Camps I to III, 500 to 2500 ft.

A form with leaves more deeply cut than usual. The commonest and most widely dispersed species in the world, and somewhat variable.

Distrib. Tropical Africa and all over Tropical Asia.

ELATOSTEMA MACROPHYLLUM, Brongn. Bot. Voy. Coq. 207, t. 45.

Camp VI *b*, 3900 ft.

Distrib. Malay Archipelago.

ELATOSTEMA SESQUIFOLIUM, Hassk. Cat. Hort. Bog. Alt. 79.

Canoe Camp, 150 ft., and Camps III to VI, 2100 to 2500 ft.

The plant from the latter locality is a form with very narrow leaves, only 1·7 cm. across.

Distrib. Indo-Malaya.

ELATOSTEMA TRICHANTHUM, Lauterb. in Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 255.

Camps III to VI and VII, 2500–3600 ft.

Distrib. Endemic in New Guinea.

ELATOSTEMA NOVO-GUINEENSE, Warb. in Engl. Bot. Jahrb. xiii. (1891) 290.

Camp VI *b*, 3900 ft.

Distrib. Endemic in New Guinea.

ELATOSTEMA BLECHNOIDES, Ridl., sp. nov.

Caulis ascendens, gracilis, flexuosus, pubescens. *Folia* sessilia, lanceolata, serrata, acuminata, basi inæqualiter cordata, 5·5 cm. longa, 9 mm. lata, superne glabra, nervis 15 paribus subtus appresse hirtis. *Florum* glomeruli sessiles, axillares, 3 mm. lati; bracteæ lanceolatæ, margine longe hirtæ, involucrales lineari-lanceolatæ, hirtæ. *Flores feminei* minuti, pedicellati. *Sepala* brevia, linearia, obtusa. *Achænia* ellipsoidea, lævia, utrinque paullo angustata, pallide brunnea, ferme 1 mm. longa. *Flores masculi* desunt.

Camps VIII to IX, 4900 to 5500 ft.

Allied perhaps to the last, but the leaves are much more deeply serrate and not inæquilateral, except at the extreme base.

ELATOSTEMA FILICINUM, Ridl., sp. nov.

Herba ascendens, ramosa, caulibus gracilibus glabris. *Folia* opposita, inæqualia, majora lanceolata, acuta, haud obliqua, basi lata, rotundata, inæqualiter cordata, 1·5 cm. longa, 1 cm. lata, nervis 6 paribus; minora ovata, 5 mm. longa. *Flores masculi* glabri, pauci in capitulo 3 mm. lato, subumbellati, breviter pedicellati, 2 mm. longi; pedunculi filiformes, 5 cm. longi, axillares; bracteæ lanceolatæ, acutæ, parvæ. *Sepala* 5, ovata, orbicularia, apice rotundata. *Stamina* 5, filamentis inflexis. *Sepala* staminibus multo longiora, antheris cordatis, loculis ad basin divaricatis. *Flores feminei* non visi.

Camp I, 700 ft.

Allied to *E. surculosum*, Wight, var. *pedunculosum* of India.

ELATOSTEMA POLYPODIOIDES, Ridl., sp. nov.

Herba ascendens, simplex, 8–10 cm. longa, caule gracili hirto, pilis appressis. *Folia* disticha, alterna, lineari-oblonga, subacuta, falcata, valde inæquilatera, 7 mm. longa, 2 mm. lata, sessilia, sæpe 1 vel 2 dentibus versus apicem instructa, herbacea, superne atro-viridia, conico-bullata, pilis singulis in apicibus bullarum, subtus pallida, depressionibus profundis. *Flores masculi* singuli, axillares, 1 mm. longi; bracteæ 2, lanceolatæ, acutæ, virides, carinatæ, glabræ, rubro-punctatæ; pedicellus minutus. *Sepala* 4, ovata, mucronulata, rosea. *Stamina* 4, alba, antheris ovatis. *Flores feminei* desunt.

Camp IV *b*, 3900 ft.

The habit of this plant is exactly that of an *Elatostema.* It has oblique distichous leaves, the base inæquilateral, bilobed, with one large rounded lobe. The underside of the leaf bears conspicuous rounded depressions, which correspond to elevations on the

upperside, on each of which is borne a translucent trichome. The male flowers are solitary, axillary, enclosed in a pair of bracts. In this the plant resembles a *Pilea* rather than *Elatostema*, but as the habit is exactly that of an *Elatostema* I refer it to that genus.

ELATOSTEMA POTERIIFOLIUM, Ridl., sp. nov.

Herba ascendens, parce ramosa, hirta, pilis acuminatis albis translucentibus, ramis 3·5–10 cm. longis. *Folia* alterna, oblonga vel obovata, inæquilatera, basi angustata, apice obtusa, dentatis dentibus latis, 1 cm. longa, 7 mm. lata, crassiuscula (sicca), superne atro-viridia, glabra, nervis 5 profunde depressis, subtus hirta, nervis elevatis; petiolis 2 mm. longis. *Stipulæ* ovatæ, lanceolatæ, acutæ, 4 mm. longæ, membranaceæ, cystolithis in linea media. *Flores masculi* non visi. *Flores feminei* in capitulis 4 mm. latis sessilibus; bracteæ lanceolatæ, acuminatæ, hirtæ; pedicellus brevis. *Sepala* minuta, ovata, obtusa. *Ovarium* ellipsoideum, breviter stipitatum. *Achænium* ellipsoideum, 1 mm. longum, pallide flavescens, rubro-punctatum.

Camp XIII, 10,500 ft.

A pretty species, with thick, close, and dark green leaves. In the female capitula are a number of apparently sterile male flowers, each containing one stamen, with a broad filament and a slender triangular-ovate anther.

ELATOSTEMA CELATICAULE, Ridl., sp. nov.

Herba caulibus simplicibus vel paullo ramosis hirtis ascendentibus 10–20 cm. longis. *Folia* herbacea, disticha, sessilia, in uno plano imbricata, oblonga, semi-amplexicaulia, valde inæquilatera, basi rotundata, apice obtusa, 9 mm. longa, 5 mm. lata, glabra costa subtus squamata excepta. *Stipulæ* membranaceæ, lineares, rufæ, caducæ. *Flores masculi* axillares, superni, sessiles; bracteæ lanceolatæ. *Sepala* 4, oblonga, ovata, caudato-mucronata, 2 mm. longa. *Stamina* 4, filamentis oblongolinearibus, antheris linearibus magnis. *Flores feminei* 3–4-ni, in fasciculos axillares breves aggregati, verticillo bractearum suffultis, breviter pedicellati; bracteæ ad 6 lanceolatæ, acuminatæ, exteriores latiores, herbaceæ, longe ciliatæ, hirtæ, brunneostriatæ, 3 mm. longæ; pedicelli breves. *Sepala* angusta, lanceolato-linearia, acuminata, basi connata, brunnea, glabra, vix 1 mm. longa. *Staminodia* 4, majora, latiora et longiora, oblonga, obtusa, alba. *Stigma* minuta, capitata. *Achænium* 1 mm. longum, ellipsoideum, breviter pedicellatum, apice obtusum, brunneo-flavum, obscure pustulatum.

Camps X to XIII, 6700 to 10,500 ft.

A very remarkable species, with distichous leaves in one plane, entire and smooth, drying dark brown. The axillary male flowers are on the upper side, and the females on the lower side in branched fascicles with whorls of bracts, each surrounding three flowers.

Pipturus incanus, Wedd. in DC. Prod. xvi. i. 235[18].
Canoe Camp, 150 ft.
Distrib. Malay and Pacific Islands.

Pipturus argenteus, Wedd. l. c. 235[19].
Canoe Camp, 150 ft.; Camp I, 700 ft.
"Flowers pale yellowish green; fruits dull grey-green."
Distrib. Java.

Pipturus cinnamomeus, Ridl., sp. nov.
Suffrutex ramis lignosis sericeo-pubescentibus. *Folia* alterna, trinervia, lanceolata, acuminata, basi angustata obtusaque, 8–16 cm. longa, 3–5·5 cm. lata, subtus pallide flavescentia, integra, nervis 2 pubescentibus, nervulis reticulatis, petiolis 4 cm. longis. *Flores* in racemis vel paniculis, in parte inferiore ramorum sæpe in glomerulis sessilibus. *Racemi* 5 mm. longi, rhachi gracili pubescente, glomerulis 3 mm. crassis sessilibus; bracteæ racemorum lanceolatæ, acuminatæ, cuspidatæ, pubescentes, 1 cm. longæ, nervis 3 elevatis; bracteæ glomerulorum minores et magis ovatæ. *Utriculi feminei* pubescentes, apices angustati, sessiles. *Stigma* elongatum, filiforme, rubrum.
Camp VI *a*, 3100 ft.; Camps IX to XIII, 5500 to 10,500 ft.

Allied to *P. melastomatifolius*, K. Schum., but the reticulations of the nerves on the underside of the leaf are distinct and the plant is pubescent. The leaves dry reddish-cinnamon colour beneath. The lower part of the branches, nude of leaves, often bears glomerules of flowers.

Pipturus grandifolius, Ridl., sp. nov.
Folia magna, laminis ovata, acuta, serrata, basi breviter cuneata vel obtusa, 30 cm. longa, 20 cm. lata, membranacea, supra glabrescentia, pilis minutis dissitis obsita, sicca fusca, subtus alba, trinervia, nervulis subhorizontalibus vel ascendentibus elevatis brunneis pubescentibus petiolis 16 cm. longis parce albo-hirtis. *Paniculæ* breves, laxæ, axillares, 5 cm. longæ, glomerulis 2 mm. longis, ramulis pubescentibus. *Fructus* succulentus, obovoideus, perianthio tenuiter succulento adnato. *Stylus* nullus. *Stigma* parvum, capitatum. *Achænium* complanatum, orbiculare.
Canoe Camp, 170 ft.

This plant closely resembles in appearance *Debregeasia Wallichiana*, Wedd., of India, but the leaves are less serrate, and the white of the back is not formed of the closely-appressed cottony tomentum of that species. The fruit is, moreover, totally different, the receptacle is not fleshy but dry, and the perianth is very thin and altogether that of a *Pipturus*.

Debregeasia pulchra, Ridl., sp. nov.
Frutex, ramis pubescentibus rubris pilis albis. *Folia* alterna, ovata, acuta, coriacea, basi rotundata vel paullo angustata, serrata, superne atro-viridia, bullata, subtus

alba, 4–7 cm. longa, 1–2 cm. lata, nervis 3 reticulationibus prominulis, petiolis hirtis 3–10 mm. longis. *Bracteæ* ovatæ, hirtæ, acuminatæ, 4 mm. longæ. *Glomeruli* 3 mm. lati. *Flores masculi*: *Sepala* 5, ovata, hirta, lanceolata, acuta, 1 mm. longa. *Stamina* 5, sepalis æqualia, filamentis glabris. *Antheræ* latæ, rotundatæ. *Flores feminei* cylindrici, oblongi, 3–10 in quoque glomerulo. *Stigma* penicillatum.

Camp VI *c*, 5500 ft.

Var. ALPESTRIS, Ridl., var. nov.

Folia magis lanceolata et hirtiora, bullis in pagina superiore capillis in medio instructis, 2·5 cm. longa, 1 cm. lata.

Camps IX to XI, 5500 to 8300 ft.

Allied to *D. longifolia*, Wedd., but with stiffer ovate leaves.

LEUCOSYKE ALBA, Zoll. in Mor. Syst. Verz. Ind. Arch. 100.

Canoe Camp, 150 ft.; Camps III to VIII and VI *a*, 2500 to 4900 ft.

Distrib. Malay Archipelago.

CYPHOLOPHUS MONTANUS, Ridl., sp. nov.

Suffrutex 15–17 cm. altus, caulibus lignosis basi glabris glomerulis exceptis nudis, internodiis 7 cm. longis 3 mm. crassis. *Folia* in apice caulis aggregata, subcoriacea, lanceolata, crenulata, 2·5 cm. longa, 1·7 cm. lata, superne bullata, subtus grisea, nervis 3 elevatis pilis griseis tectis, petiolis 2 mm. longis albo-hirtis; stipulæ lanceolatæ, acuminatæ, ad carinam et apicem hirtæ, 3 mm. longæ. *Glomeruli* in paria infra folia dispositi, sessiles, globosi, 5 mm. lati; bracteæ lanceolatæ, acuminatæ, 3 mm. longæ, glabræ. *Flores feminei* perianthio urceolato brunneo apice hirto. *Stylus* longus, filiformis. *Achænium* obovatum, læve, complanatum, ultra 0·5 mm. longum.

Camps X to XIII, 6700 to 10,500 ft.

CYPHOLOPHUS RUDIS, Ridl., sp. nov.

Caules elati, 3 mm. crassi, dense hirti, internodiis 3 cm. longis. *Folia* opposita, vix inæqualia (unum paullo majus), ovata, cordata, acuminata, serrata, bullata, superne hirta, subtus dense velutino-hirta, majus 9 cm. longum, 4 cm. latum petiolo 3 cm. longo hirto, minus 5 cm. longum, 3·5 cm. latum petiolo 1 cm. longo; stipulæ lanceolatæ, ad medium bifidæ, apice acuminatæ, 0·7 mm. longæ, 0·2 mm. latæ, carinis hirtis. *Glomeruli* densi, hirti, 1–1·5 cm. lati. *Flores masculi*: *Sepala* 4, lanceolata, acuminata, longa, hirta. *Stamina* 4, filamentis brevioribus glabris. *Flores feminei*, perianthio urceolato 1 mm. longo, margine longe albo hirto. *Stamina* 3, exserta. *Achænium* parvum, ovoideum, stipitatum, læve.

Camps VIII to X, 4900 to 6700 ft.

This species is allied to *C. latifolius*, Wedd. (*Boehmeria latifolia*, Blume), but the leaves are more hairy and smaller, and the pairs are less unequal in size—in fact, sometimes almost equal.

MAOUTIA LANCEOLATA, Ridl., sp. nov.

Suffrutex, ramis gracilibus, cortice rugoso verrucoso. *Folia* alterna, tenuiter coriacea, lanceolata, longe acuminata, basi rotundata, obscure (vel in juvenilibus conspicue) crenulata, 8 cm. longa, 1·5 cm. lata, subtus alba, nervis 3 cum nervulis subtus hirtis, petiolis gracilibus 1·2 cm. longis. *Stipulæ* lanceolatæ, acuminatæ, caudatæ, albo-sericeæ, 3 mm. longæ. *Flores masculi* in paniculas gracile breviramosas 1·5–2 cm. longas glomerulati, rhachi albo-pubescente, pedicellis brevibus. *Sepala* acuta, lanceolata, pubescentia. *Stamina* 4, filamentis sepalis æqualia, antheris ellipticis. *Pistillodium* albo-lanuginosum.

Camp VI *a*, 3100 ft.

Very distinct in its narrow lanceolate leaves and slender unisexual panicles. The flowers are borne in small glomerules of 4 or 5 together and shortly pedicelled.

CUPULIFERÆ.

QUERCUS IMPERIALIS, Seemen, in Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 263, fig. iv. F.

A single fruit, with a rather more cone-shaped acorn than in the figure above-quoted. The type of this species is also a single fruit without specific locality. Foliage and flowers unknown.

CONIFERÆ.

PODOCARPUS PAPUANUS, Ridl., sp. nov.

Arbor elata, ramis patulis. *Folia* dimorpha, alia in ramulis sterilibus decurrentia, plana, oblonga, obtusa, mucronata, mucrone ascendente parvo, 2 mm. longa fere 1 mm. lata, costa crassa rigide coriacea, alia in ramis fertilibus lanceolata, mucronata, crassa, rigide coriacea, ad 5 mm. longa. *Amenta* mascula cylindrica, obtusa, 6 mm. longa, 2 mm. crassa, squamis ovatis acutis; antheræ loculis 2 ad basin globosis. *Flos femineus* in ramulo laterali. *Semen* receptaculo 3 mm. longo insidens, globulosum, læve, haud apiculatum, 5 mm. longum, nervis prominulis.

Camp III, 2500 ft.; Camps XI to XII, 8300 to 11,000 ft.

Distrib. British New Guinea: Wharton Range, 11,100 ft. (*Giulianetti*); between south coast and Owen Stanley Range (*Burke, in Herb. Kew.*); according to Koorders (under *Dacrydium* sp., in Lorentz, Nov. Guin. viii. 178) also on the summit of Hellwig mountain, 7000 ft. (*coll. Lorentz*).

The specimens collected by Kloss are males. The description of the fruit is taken from Giulianetti's specimen. This species is allied to *Podocarpus imbricata*, Blume (*P. cupressina*, R. Br.), a mountain-tree of the Malay Peninsula, Java, Sumatra, Borneo, Celebes, and the Philippines: but it differs (1) in the much thinner longer leaves of the sterile branches, which are much longer in proportion to their breadth than in

P. papuana; (2) in the thick, lanceolate, short leaves of the fertile branches; (3) in the absence, as far as a fairly good series of specimens shows, of the slender whip-like fertile branches so characteristic of this species. The seed is quite globose, without any point, and the male-flower scales are more ovate and thicker.

Although specimens of *Podocarpus cupressinus*, collected by Haviland on Mt. Kinabalu at 11,000 ft. altitude, differ distinctly from typical forms in the much condensed stiffer leaves, and seem to a certain extent to suggest a connecting-link between these two species, yet I think that the New Guinea plant must be considered specifically distinct.

ORCHIDEÆ: Epidendreæ.

(By H. N. Ridley.)

Microstylis laxa, Ridl., sp. nov.

Caulis repens, ascendens, gracilis, 14–12 cm. longus. *Folia* 3, ovata, acuminata, 3–4 cm. longa, 1–2·5 cm. lata, basi lata, vaginis angustis 1 cm. longis. *Racemus* 23–25 cm. longus, pro majore parte laxe florifer. *Bracteæ* lineares, acuminatæ, deflexæ, 4 mm. longæ. *Pedicelli* 6 mm. longæ. *Sepala* linearia, oblonga, 5 mm. longa, basi 1 mm. lata. *Petala* linearia, obtusa, 4 mm. longa, 5 mm. lata. *Labellum* ovatum, orbiculare, apice acutum, marginibus dentatis, auriculis longis curvis acutis. *Columna* brevissima, stelidiis brevibus. *Anthera* oblonga, rotundata.

Camps X to XI, 6700 to 8300 ft.

Perhaps most nearly allied to *M. hydrophila*, J. J. Sm., but with very short teeth to the rounder lip, longer auricles, and narrower petals and sepals, whilst the colour appears to have been yellow or green, and not purple.

Microstylis acuminata, Ridl., sp. nov.

Caulis succulentus, 10 cm. longus. *Folia* 3–4, elliptica, ovata, longe acuminata, acuta, basi rotundata, ad 16 cm. longa, 4 cm. lata, petiolis 4 cm. longis latis vaginantibus. *Racemus* circiter 20 cm. longus, ad medium nudus, floribus multis dissitis. *Bracteæ* lineares, acuminatæ, 1·1 cm. longæ, angustissimæ, deflexæ. *Pedicelli* filiformes, 1 cm. longi. *Sepala* lineari-oblonga, obtusa, angusta, 4 mm. longa. *Petala* linearia, obtusa, breviora, angustiora, dimidio sepali æquilata. *Labellum* subquadratum, apice cuneatum, cuspidatum, cuspide longiusculo minute bifido, auriculis longis acuminatis falcatis. *Columna* curva, longiuscula, stelidiis brevibus latis oblongis rotundatis.

Camp VI *a*, 3100 ft.

The lip is rather remarkable for its quadrate form, suddenly sharply cuneate or triangular at the tip, ending in a narrow linear bifid cusp. The column is rather longer than is usually the case in the genus, and curved.

MICROSTYLIS RHABDOPHYLLA, Ridl., sp. nov.

Caulis erectus, 6–9 cm. longus. *Folia* ad 8, lanceolata, obliqua, basi breviter cuneata, apice obtusa, 4–7 cm. longa, 1·2–2·5 cm. lata, atro-viridia, fascia centrali læte viridi vel purpureo-brunnea, marginibus crispis, petiolis 1–2·5 cm. longis. *Racemus* 15–30 cm. longus, pro 8–15 cm. nudus, superne laxe florifer. *Bracteæ* lineares, acuminatæ, patentes, 2–3 mm. longæ. *Pedicelli* æquilongi. *Flores* plures, parvi, 3 mm. lati, flavo-kermesini. *Sepalum* posticum, oblongum, lateralia ovata, obtusa, latiora. *Petala* linearia, obtusa, multo angustiora. *Labellum* obovatum, oblongum, marginibus integris, apice lato bilobo sinu lato, lobis brevibus acutis, auriculis brevibus latis obtusis incurvis. *Columna* brevis; stelidia oblonga, truncata, longa. *Anthera* ovata.

Canoe Camp, 150 ft., and Camp I, 700 ft.

A charming plant, allied to *M. Warapussæ*, Schlecht., but the lip is neither reniform nor toothed, and the auricles are blunt and incurved. The foliage is described by Kloss as dark green and light green or purple-brown and reddish green, and the flowers as deep yellow and crimson, or green to yellow to dull crimson. The leaves show when dry a paler broad bar up the centre. In habit it somewhat resembles *M. micrantha*, Hook. fil., of the Malay Peninsula, and in the form of the flower *M. calophylla*, Reichb., of Siam.

MICROSTYLIS ATRO-BRACHIATA, Ridl., sp. nov.

Caulis 4 cm. longus. *Folia* 4, lanceolata, acuta, basi breviter cuneata, viridia, inæqualia, obliqua, 5-nervia, marginibus crispis, 5 cm. longa, 1·5 cm. lata vel minora, petiolo 1½ cm. longo. *Racemus* gracilis, 28 cm. longus, ad medium nudus. *Flores* parvi, approximati. *Bracteæ* lanceolatæ, acuminatæ, angustissimæ, deflexæ, 3 mm. longæ vel minores. *Pedicelli* brevissimi, 1 mm. longi. *Sepalum* posticum oblongo-lanceolatum, obtusum, lateralia ovata, obtusa, latiora, 2 mm. longa. *Petala* lineari-oblonga, obtusa, angustiora. *Labellum* hastatum, integrum, acutum, 2 mm. longum, auriculis triangularibus excurvis. *Columna* cylindrica, erecta, longa, pallida, stelidiis magnis atro-viridibus oblongo-ellipticis deflexis. *Anthera* minuta, lanceolata, obtusa. *Rostellum* erectum, lanceolatum, obtusum, æquilongum, virescens.

Camp VI *a*, 3100 ft.

Allied to *M. tubulosa*, J. J. Sm., it is one of a small group in which the column is unusually tall and slender, the stelidia deep blackish green and very conspicuous, the anther small, and the rostellum large and nearly or quite as tall. Except for the fact that there are species of the genus known which connect these long-columned species with the typical forms with the short column, one would certainly distinguish these generically. The column and anther are pale yellow, or perhaps white, the stelidia of a deep blackish green, elliptic and rounded at the top, and hanging down; the rostellum, long, conspicuous and narrow, is also a very remarkable feature.

MICROSTYLIS (§ COMMELYNOIDEÆ) CIRCEA, Ridl., sp. nov.

Planta humilis, 10–15 cm. longa, caule ascendente gracili 5 cm. longo. *Folia* ad 5, dissita, ovata, lanceolata, tenuia, acuminata, 4 cm. longa, 2 cm. lata, marginibus

undulatis crispis, basi paullo angustata, petiolis vaginantibus 5 mm. longis. *Racemus* gracillimus, 8 cm. longus, a basi ad medium bracteis paucis linearibus exceptis nudus. *Flores* parvi, dissiti, patentes. *Bracteæ* 3 mm. longæ, lineares, acuminatæ, deflexæ. *Pedicelli* filiformes, 5 mm. longi. *Perianthium* viride, 3·5 mm. latum. *Sepalum* posticum oblongum, obtusum, erectum, lateralia deflexa, oblonga, latiora. *Petala* lanceolato-linearia, obtusa, recurva, breviora et angustiora. *Labellum* ambitu ovatum, auriculis angustis erectis lanceolatis acuminatis, sepalo postico paullo brevioribus, lamina in utroque margine dentibus longiusculis 3 munita, apice acuminato obtuso integro, marginibus in discum e fovea magna eminentem elevatis. *Columna* brevis, crassa, stelidiis oblongis porrectis truncatis. *Anthera* parva, ovata, rostrato lato retuso.

Camps VIII to IX, 4900 to 5500 ft.

A very curious little plant with an elongated leafy stem and a slender raceme of little flowers in which the petals and pectinate sides of the lip are curved backwards so as to be out of sight from in front; the unusually long pointed auricles of the lip stand up against the dorsal sepal, of which they are ⅔ the length.

Oberonia (§ Caulescentes) marginata, Ridl., sp. nov.

Caules congesti, 10–12 cm. longi, foliis 12–14 arcte tecti. *Folia* disticha, ensiformia, acuminata, 5 cm. longa, 5 mm. lata, herbacea. *Scapus* gracillimus, 15–18 cm. longus, basi 3 per cm. nudus. *Flores* minuti, virides, remoti, singuli vel bini, rhachi marginata, alis 2 tenuibus translucentibus albis subdenticulatis. *Bracteæ* lanceolatæ, translucentes, denticulatæ, ovariis cum pedicellis cylindricis marginatis æquales, 2 mm. longæ. *Flos* 1 mm. latus. *Sepala* ovata, integra. *Petala* subsimilia, angustiora. *Labellum* brevius, late triangulare, apice truncato retuso, marginibus dentibus 8–10 pectinatis, nervis 2 a basin disjunctis versus apicem conjunctis. *Columna* brevis, crassa; stelidia parva, oblonga, truncata.

Camp I, 500 ft.

The rhachis and pedicels are margined with a thin, irregularly broken, transparent membrane, which is edged with short clubbed or obtuse processes, or teeth, which also occur on the edges of the bracts. The flowers are very minute in proportion to the rather long pedicel and ovary, and are opposite to each other, singly or in pairs, for the whole length of the raceme.

Oberonia (§ Caulescentes) spathipetala, J. J. Sm. in Nova Guinea, viii. 27, fig. ix. 28.

Camp VI *a*, 3100 ft.

Distrib. Endemic in New Guinea.

Oberonia (§ Caulescentes) Klossii, Ridl., sp. nov.

Caules undique foliati, 15 cm. longi. *Folia* imbricata, erecta, ensiformia, curva, acuta, 1·5 cm. longa, 4 mm. lata. *Racemus* gracillimus, 7 cm. longus, rhachi fermo omnino florifera, floribus 7–8-nis minutis in verticillis 2 mm. distantibus. *Bracteæ* minutæ, lanceolatæ, integræ, pedicellis subæquilongæ. *Pedicelli* brevissimi, vix 1 mm. longi.

Sepala ovata, subacuta. *Petala* ovata. *Labellum* subquadratum, longius, caudis brevibus 2 in angulis exterioribus. *Columna* brevissima. *Anthera* calvariformis.

Canoe Camp, 150 ft.

"Flowers brown."

This has the habit of *O. pleistophylla*, J. J. Sm., of Celebes, but differs from all of this group known to me in the extremely slender rhachis of the raceme, and in the shape of the lip. The flowers are very minute, and in the only raceme present are in bud, so that it is difficult to make out the structure.

Liparis (§ Mollifoliæ) puberula, Ridl., sp. nov.

Folia solitaria, haud articulata, in pseudobulbis brevibus vaginis ovatis lanceolatis acuminatis 3 cm. longis 1 cm. latis tectis, petiolo 6 cm. longo, lamina oblanceolata cuspidata ad basin angustata 13 cm. longa 2·2 cm. lata. *Racemus* 14 cm. longus, fere ad basin florifer, floribus dissitis viridibus. *Bractea* basalis lanceolata, acuminata, pallida, 2 cm. longa. *Bracteæ* florales 0·5 mm. longæ, lanceolatæ, acuminatæ, ovario æquilongæ. *Sepala* oblongo-elliptica, obtusa, 3 mm. longa, posticum quam lateralia angustius, trinervia, nervis in medio approximatis mediano elevato. *Petala* linearia, obtusa, sepalis duplo angustiora. *Labellum* 4 mm. longum et latum, orbiculari-obovatum, ungue brevissimo apice retuso subtrilobo, lobo intermedio brevi lineari-oblongo, marginibus minute pubescentibus, callo lobis 2 brevibus rotundatis carina parva transversa conjunctis. *Columna* 2 mm. longa, basi crassa, superne gracilior, curva. *Anthera* transverse oblonga, rotundata nec rostrata, apice plana, pustulata.

Camp VI *a*, 3900 ft.

Liparis (§ Pleiophyllum) cyperifolia, Ridl., sp. nov.

Herba, ut videtur, terrestris, radicibus elongatis, rhizomate crasso ultra 5 cm. longo 1 cm. lato. *Folia* 2–4 in apice caulis 1 cm. longi, herbacea, trinervia, linearia, acuminata, 17–30 cm. longa, 8–12 mm. lata. *Bractea* basalis in vagina folii celata, lanceolata, acuminata, 3 cm. longa. *Racemus* erectus, 20 cm. longus, basi (per 11 cm.) nudus. *Flores* circiter 8, remote virides. *Bracteæ* lineari-lanceolatæ, acuminatæ, 1 cm. longæ. *Pedicelli* gracillimi, 2 cm. longi. *Sepala* linearia, obtusa, 1 cm. longa, 1 mm. lata. *Petala* angustiora, æquilonga. *Labellum* hastatum, ungue lineari-oblongo, lamina basi lata hastata ovata cuspidata crenulata 1·2 cm. longa ad basin 6 mm. lata, callo carina lata crassa in disco unguis costa transversa elevata terminata. *Columna* 5 mm. lata, curva, alis magnis (iis *L. brachystelidis* multo minoribus), apice lato crasso.

Canoe Camp, 150 ft.; Camps III to VIII, 2500 to 4900 ft.

Allied to *L. toricellensis*, Schlechter, but with a much stouter rhizome, larger leaves and flowers, and two or three leaves on the pseudobulb.

Liparis (§ Pleiophyllum) brachystele, Ridl., sp. nov.

Caulis anceps, complanatus, costatus, 9 cm. longus. *Folium* haud articulatum, ad basin longe vaginans, glabrum, gramineum, lanceolatum, longe acuminatum, versus

basin attenuatum, 33 cm. longum, 2 cm. latum. *Bractea* ad basin racemi in vagina folii inclusa, tenuis, papyracea, lanceolata, acuminata, 3 cm. longa. *Racemus* 19 cm. longus, rhachi paullo complanata. *Flores* 10, dissiti, pedicellis 3 cm. longis. *Bracteæ* lanceolatæ, lineares, longe acuminatæ, 1·5 cm. longæ. *Sepala* subæqualia, linearia, obtusa, 1·4 cm. longa, 1 mm. lata. *Petala* angustiora, linearia. *Labellum* orbiculare, integrum, ungue brevissimo, lamina 1·3 cm. longa et lata, callo minimo oblongo truncato. *Columna* brevis et crassa, fere erecta, 2 mm. longa, 1 mm. crassa, eius et clinandrii marginibus totis late tenuiterque alatis, alis translucentibus.

Camp III, 2500 ft.

" Pale raw sienna with greenish central stripe."

This has the habit of *L. torricellensis*, Schlechter, but is larger and has broader leaves. The column is very remarkable, quite unlike any in this section, being very short and stout, nearly quite straight, with broad, thin, pale wings running along both sides and continued along the back of the clinandrium.

LIPARIS (§ PLEIOPHYLLUM) CONGESTA, Ridl., sp. nov.

Radices elongati, lanuginosi. *Folia* linearia, acuminata, ad basin longe angustata, 19 cm. longa, 1 cm. lata, papyracea, nervis elevatis 3. *Scapus* brevior, 15–18 cm. longus, basi nudus 5–6 bracteis linearibus acuminatis 1 cm. longis angustissimis exceptis. *Racemus* congestus, multiflorus. *Flores* parvi. *Bracteæ* lanceolatæ, longe acuminatæ, 5–8 mm. longæ, pallidæ. *Pedicelli* cum ovariis graciles, 1 cm. longi. *Sepalum* posticum oblongo-lineare, 5 mm. longum, 1 mm. latum, lateralia latiora, oblonga, obtusa, trinervia, fere 2 mm. lata. *Petala* lineari-filiformia, longiora, angusta. *Labellum* ungue brevi, lamina 5 mm. longa et lata integra flabelliformi rotundata margine obscure denticulata, callo hippocreniformi ad basin laminæ carnoso in nervis crassiusculis 2 medianis decurrente, nervis lateralibus incrassatis ramosis. *Columna* brevis, crassiuscula, 3 mm. longa, alis brevibus oblongis truncatis. *Anthera* ovata, breviter obtuse rostrata. *Capsula* erecta, oblanceolata, basi angustata, 1·5 cm. longa, pedicello 2 cm. longo.

Camps I to III, 500 to 2500 ft.

The pseudobulbs are short and reduced to a small subcylindrical stem, covered by the leaf-bases, which are not articulated. The leaves are not as thin as those of typical *Mollifoliæ*, whilst the blade is gradually narrowed towards the base, where it dilates a little. The main nerve of this narrowed portion runs at first centrally, but where the leaf widens it runs to one side and becomes rapidly more slender.

LIPARIS (§ CORIIFOLIÆ) LATIFOLIA, Lindl. Gen. & Sp. Orch. Pl. 30.

Camp VI *a*, 3100 ft.

Distrib. Malay Peninsula and Islands.

LIPARIS (§ CORIIFOLIÆ) INSECTIFERA, Ridl., sp. nov.

Herba epiphytica, rhizomate 3 mm. crasso, pseudobulbis cylindricis 1·5 cm. longis, ad basin foliis 2 ovatis acutis papyraceis nervosis pallidis tectis. *Folia* 2, coriacea,

elliptica, acuta, 4 cm. longa, 1·5 cm. lata, atro-viridia, nervis 6 elevatis, vagina 1 cm. longa, nervis pluribus elevatis. *Scapus* 13 cm. longus, basi (dimidio) nuda crassiuscula glabra. *Racemus* strictus, floribus ad 14 erectis mediocribus. *Bracteæ* lanceolatæ, acutæ, 4 mm. longæ, 1 mm. latæ. *Ovarium* cum pedicello 2 cm. longum, erectum. *Sepala* linearia, obtusa, 9 mm. longa, 1 mm. lata, posticum erectum, lateralia porrecta. *Petala* linearia, angustiora et breviora, 7 mm. longa. *Labellum* oblongum, integrum, versus basin angustatum, apice rotundatum, obscure undulatum, breviter obtuse apiculatum, 6 mm. longum, 3 mm. latum, callis bilobis carnosis, lobis brevibus oblongis rotundatis. *Columna* erecta, curva, apice dilatata, anguste alata.

Camps XI to XIII, between 8300 and 10,500 ft.

The petals and sepals appear to have been yellow, the lip green.

LIPARIS (§ DISTICHÆ) LOLIACEA, Ridl., sp. nov.

Pseudobulbi conico-cylindrici, 15 mm. longi. *Folium* gramineum, lineare, acuminatum, acutum, 50 cm. longum, 7 mm. latum. *Scapus* anceps, gracilis, 30 cm. longus. *Racemus* 5–9 cm. longus, 5 mm. latus. *Bracteæ* lanceolatæ, subobtusæ, haud imbricatæ. *Pedicelli* 1 cm. longi. *Sepala* deflexa, elliptica, 5 mm. longa, 2 mm. lata, carinata, mucronulata. *Petala* subspathulata, 4 mm. longa, obtusa. *Labellum* carnosum, 5 mm. longum, ungue brevi lato, lamina hastata, lobis duobus ad basin erectis, versus apicem angustata, apice obtuso pustulato pubescente, callo inter lobos basales crasso obscure lobato. *Columna* brevis, lata, alis rotundatis latis ad apicem juxta stigma abrupte angustatis. *Anthera* complanata, rotundata, rostro semi-ovato rotundato.

Camp VI *a*, 3100 ft.

The flowers are apparently red. This is allied to *L. pseudodisticha*, Schlechter, of New Guinea, but differs in its lip narrowing to a point, and in the wings of the column being abruptly narrowed at the top just above the stigma, instead of being carried up to the clinandrium.

LIPARIS (§ DISTICHÆ) TRITICEA, Ridl., sp. nov.

Rhizoma elongatum, gracile, 1·5 mm. crassum. *Pseudobulbi* dissiti, 2 cm. remoti, ovoidei, 5 mm. longi, vaginis 2–3 lanceolatis cuspidatis ad 4 cm. longis tecti. *Folia* 1–2, anguste linearia, acuta, graminea, 22 cm. longa, 4 mm. lata. *Scapus* gracilis, anceps, 19 cm. longus, nudus. *Racemus* ad 3 cm. longus et 8 mm. latus. *Bracteæ* distichæ, approximatæ, circiter 34, lanceolatæ, acuminatæ, acutæ. *Pedicelli* 1 cm. longi, graciles. *Sepala* oblonga, lanceolata, obtusa, mucronulata, carinata, deflexa, 4 mm. longa. *Petala* oblanceolata, angustiora, 3 mm. longa. *Labellum* sessile, 3 mm. longum, late oblongum, quadratum, apice rotundatum, minute trilobum, lobis minutis lateralibus rotundatis, medio æquilongo lineari, lateribus ad basin in pseudolobos 2 erectos compressis, callo magno carnoso rotundato bilobo. *Columna* brevis, curva, haud marginata, alis prope stigma rotundatis obtusis. *Capsula* 6 mm. longa, oblanceolata, costis prominulis, pedicello 6 mm. longo.

Camp I, 700 ft., and Camp VI *a*, 3100 ft.

This has the habit of *Liparis disticha*, Lindl., but the column is not broadly winged to the base. The flowers appear to be green.

Dendrobium Wollastonii, Ridl., sp. nov.

Pseudobulbi elliptico-conici, 79 cm. longi, 5·5 cm. in circuitu. *Folia* oblonga, obtusa, coriacea, 10·5 cm. longa, 4·8 cm. lata. *Flores* 2 vel plures, speciosi. *Bractea* ovata, lanceolata, acuminata, glabra, pallide viridis, 1 cm. longa. *Pedicellus* 2 cm. longus. *Ovarium* 5 mm. longum, hirtum, album, roseo-punctatum. *Sepala* lanceolata, acuminata, 5 cm. longa, basi 1 cm. lata, alba, pilis viridescenti-albis tecta, mento lato obtuso kermesino-punctato. *Petala* alba, glabra, spathulata, 5 cm. longa, 3·5 cm. lata quo latissima, ungue lineari-oblongo, limbo ovato acuminato. *Labellum* trilobum, glabrum, lobis lateralibus oblongis truncatis 2·5 cm. longis, apice 1·5 cm. latis lacteis, marginibus supra basin versus lineis violaceo-roseis maculatis, subtus punctis rufescentibus in lineas dispositis ornatis, lobo terminali ovato-acuminato acuto 1·5 cm. longo 2 cm. lato lacteo, basi labelli incrassato decurvo, callo magno oblongo albo apice trifido et trisulcato. *Columna* brevis, 1·5 cm. longa, in utroque latere linea violaceo-rosea, et infra stigma macula hippocrepiformi notata, apice lato; stelidia erecta, dentiformia. *Anthera* lata, hemispherica, æquilonga.

A living plant was brought home by Mr. Wollaston, and flowered by the Honourable Charles Rothschild.

This handsome plant differs from *D. Forbesii*, Ridl. in its hairy sepals and mauve colouring, and from *D. ternatense*, J. J. Sm. in its acute lip and trifid callus.

Dendrobium macrophyllum, A. Rich. Sert. Astrol. 22, t. 9.

Launch Camp, at sea-level.

Distrib. Java, Timor, Philippines, and Papua.

Dendrobium (§ Crumenati) platybasis, Ridl., sp. nov.

Caulis 30 cm. longus, complanatus, internodiis basalibus 4 flavis politis ancipitibus cum carina mediana in utroque latere. *Folia* curva, linearia, acuta, 4 cm. longa, 3 cm. lata. *Flores* e fasciculis bractearum in parte nuda terminali 4 cm. longa. *Bracteæ* lanceolatæ, acuminatæ. *Pedicellus* 6 mm. longus, gracilis. *Sepala* postica ovata, acuta, 5 mm. longa, lateralis triangularia, latiora, acuta, 2 mm. lata; mentum obtusum, curvum. *Petala* linearia, angusta, sepalo postico subæquilonga. *Labellum* 1 cm. longum, 1 cm. latum quo latissimum, obcuneatum, ungue late obtriangulari-obovato, marginibus undulatis minute denticulatis, carina media crassa carnosa bisulcata.

Launch Camp, at sea-level.

Very near to *D. acerosum*, Hook. fil., except for the dilated bases of the stem, which are flattened and thin, the biggest about 5 mm. across and 3·5 cm. long and narrowed slightly at both ends (those above very distinctly narrowed below), whilst a sharp keel runs down each of the flattened faces. The flowers appear to have been pinkish at the tips.

DENDROBIUM (§ APORUM) ATROPURPUREUM, Miq. Fl. Ind. Bot. iii. 644.

Launch Camp, at sea-level.

Distrib. Malay Peninsula and Islands.

DENDROBIUM (§ GRASTIDIUM) KLOSSII, Ridl., sp. nov.

Caules elongati, ad 20 cm. longi, 5–8 mm. crassi, paullisper complanati, vaginis tenuiter costatis tecti. *Folia* (sicca) papyracea, tenuia, elongata, lanceolata, complanata, attenuata, carina inconspicua, 15 cm. longa, 2·2 cm. lata, vaginis 3 cm. longis arcte caulibus adpressis. *Flores* bini. *Bracteæ* exteriores hemisphæricæ, rotundatæ, 1 mm. longæ, interiores oblongæ, ovatæ, apice rotundatæ, 7 mm. longæ, 7 mm. latæ. *Ovarium* cum pedicello 3 cm. longo. *Sepalum* posticum lineare, obtusum, cucullatum, curvum, carnosum, papillosum, 1·6 cm. longum, 2 mm. latum, lateralia latiora 4 mm. lata, oblonga, obtusa, falcata; mentum breve. *Petala* oblanceolata, obtusa, 1 cm. longa, 3 mm. lata. *Labellum* ungue brevi curvo canaliculato, lamina subquadrato-oblonga obscure triloba, lobis lateralibus brevibus curvis obtusis, medio lato carnoso truncato apice lato ad margine undulato glabro ecalloso, venis 3 in medio prominulis papillosis. *Columna* brevissima, clinandrii lobis prominulis tenuibus. *Anthera* alta, conico-oblonga, apice rotundato retuso.

Camp I, at 500 ft.

Allied to *D. imbricatum*, J. J. Sm., but the plant is much larger, and the middle lobe of the lip broad and truncate, not abruptly acuminate.

DENDROBIUM (§ GRASTIDIUM) VANDERWATERI, Ridl., sp. nov.

Caulis bambusiformis, gracilis, 2 mm. crassus. *Folia* lanceolata, longe acuminata, basi angustata, 11–12 cm. longa, 8–9 mm. lata, vaginis costatis cancellatis ore rotundis, cuspide brevi lanceolato, lamina opposita. *Flores* bini. *Bracteæ* primariæ semiovatæ, secundariæ oblongæ, lanceolatæ, castaneæ, 1·5 cm. longæ, 3 cm. latæ. *Pedunculus* 1 cm. longus, pedicelli 5 mm. longi. *Sepala* lanceolata, ovata, caudata, cauda filiformi, 2·5 cm. longa, basi 5 mm. lata; mentum brevissimum, rotundatum. *Petala* angustiora, basi lanceolato-linearia, apice filiformi-caudata, 2 cm. longa. *Labellum* 5 mm. longum, citrinum, obcuneatum, trilobum, lobis lateralibus brevis obtusis, lobo medio oblongo obtuso æquilongo, ad basin labelli callo elongato lineari-oblongo pilis citrinis dense tecto. *Columna* brevis, cylindrica, alis brevibus clinandrii margine elevato. *Anthera* magna, depressa, conica, rostro oblongo obtuso.

Camp VI *a*, 3100 ft.

Near *D. biflorum*, Sw., which it resembles much in habit.

DENDROBIUM (§ GRASTIDIUM) DONACOIDES, Ridl., sp. nov.

Caulis bambusinus, elongatus, 4 mm. crassus, vaginis tectus. *Folia* tenuiter coriacea, lanceolata, acuminata vel elliptico-lanceolata et acuta, ecarinata, 11 cm. longa,

2 cm. lata, tenuiter costata, basi angustata, vaginis 5–5·5 cm. longis, ore integro; in margine folio opposito vix producta. *Flores* bini. *Bracteæ* exteriores breves, hemisphæricæ, 1 mm. longæ et latiores, interiores ovatæ, rotundatæ, 4 mm. longæ, æquilatæ. *Sepalum* posticum lineari-obtusum, 1–8 cm. longum, 2 mm. latum; lateralia latiora 3 mm. lata, æquilonga; mentum breve, curvum, obtusum. *Petala* linearia, obtusa, fere æquilonga, 1·7 cm. longa, 2 mm. lata. *Labellum* 1 cm. longum, trilobum, lobis lateralibus brevibus latis obtusis, lobo medio ovato cuspidato multo longiore cum disco omnino pilis flavis dense tecto, linea mediana disci ad basin elevata. *Columna* brevis, lata, pede æquilongo; clinandrii margines elevati, tenues, obtusi. *Anthera* obtuse conica, alta. *Pollinia* anguste elliptica.

Camp I, at 700 ft.

Perhaps nearest to *D. multistriatum*, J. J. Sm., but the lip has shorter lateral lobes, and the disc and middle lobe are all covered with yellow hairs.

DENDROBIUM (§ GRASTIDIUM) CURVISEPALUM, Ridl., sp. nov.

Caulis crassus, complanatus, vaginis omnino tectus, 5 mm. crassus. *Folia* ovata, lanceolata, obtusa, coriacea, apice biloba, 5·5 cm. longa, basi 1·7 cm. lata, petiolis brevibus 5 mm. longis, vaginis 1·7 cm. longis costatis, ore rotundato dente obscuro lamina opposito. *Flores* bini, paullo infra os extrusi. *Bracteæ* primariæ hemisphericæ, rotundatæ, 3 mm. longæ, mox in fibrillas pectinatim fissæ; secundariæ lanceolatæ, subacutæ, carinatæ, 7 mm. longæ. *Pedunculus* brevis. *Ovarium* cum pedicello crassiusculo 12 mm. longum. *Sepala* lateralia pallida, carnosula, oblongo-lanceolata, obtusa, falcata, 3 cm. longa, 7 mm. lata, mento rotundato 5 mm. longo, posticum lanceolatum, latum, subacutum, 3·2 cm. longum, 1·2 cm. latum. *Petala* æquilonga, linearia, lanceolata, obtusa, 6 mm. lata. *Labellum* obovatum, apice rotundatum, carnosum, omnino pilis tectum, disco carina media carnosa percurso. *Columna* crassa, ventre excavata, marginibus crassis; rostellum integrum rotundatum. *Anthera* rostro longo oblongo obtuso conico, in apice verruca pustulosa.

Camp VI *a*, 3100 ft.

Most resembling *D. eriopexis*, Schlechter, in the (for this section) great size of the flowers; they are fleshy and apparently white.

DENDROBIUM (§ GRASTIDIUM) BAMBUSINUM, Ridl., sp. nov.

Caules elongati, ultra 30 cm. longi, 3 mm. lati, complanati, multifoliati. *Folia* lanceolata, acuminata, inæqualiter biloba, basi lata, 4 cm. longa, 8–11 mm. lata, vaginis 5 mm. longis costatis. *Racemi* biflori, laterales. *Bracteæ* exteriores semiovatæ, interiores ovatæ, subacutæ, castaneæ, 1 mm. longæ. *Pedicellus* gracilis, 1 cm. longus. *Sepalum* posticum oblongum, subacutum, 7 mm. longum, 3 mm. latum, lateralia latiora, ovata; mentum conicum, obtusum, 2 mm. longum. *Petala* oblonga, lanceolata, sepalo postico æqualia. *Labellum* trilobum, 5 mm. longum, basi paullo angustatum, lobis lanceolatis obtusis foliatis 2 mm. longis fusco-striatis, lobo medio (aurantiaco?) cuneato profunde emarginato apicibus elongatis acutis, carina elevata apice incrassata e basin ad apicem undulata. *Columna* brevior quam

pes, marginibus alatis, stelidiis magnis oblongis truncatis, filamento gracili longiore. *Anthera* campanulata. *Capsula* ellipsoidea, 1·5 cm. longa, pedicello 2 cm. longo.

Between Camps III and VIII, 2500 to 4900 ft.

Allied to *D. piestocaulon*, Schlechter, but with a very different and coriaceous lip, practically four-lobed, with a very deep and wide indentation between the two acuminate points of the middle lobe. The flowers are very thin in texture, and appear to have been greenish in colour.

DENDROBIUM (§ GRASTIDIUM) PLANICAULE, Ridl., sp. nov.

Caules validi, complanati, 30 cm. longi vel longiores. *Folia* disticha, oblongo-linearia, coriacea, apice inæqualiter biloba lobis rotundatis, 4 cm. longa, 1 cm. lata, nervis tribus in dorso conspicuis, vaginis complanatis costatis 1 cm. longis, 4 mm. latis, ore integro. *Flos* solitarius, e vagina extrusus, bracteis parvis lanceolatis obtusis. *Pedicellus* cum ovario 5 mm. longus. *Sepalum* posticum lanceolatum, obtusum, lateralia latiora, ovata, lanceolata, acuta, carnosa (sicca atra), 10 mm. longa, 4 mm. lata, mento rotundato obtuso. *Petala* latiora, ovata, subacuta, 9 mm. longa, 4 mm. lata. *Labellum* linguæforme, ovatum, lanceolatum, brevius, obtusum, 6 mm. longum, lateribus sursum curvis, apice decurvo magis carnoso. *Columna* brevis, ad pedem breviorem curvata, haud alata, margine clinandrii vix elevato. *Anthera* conica, in apice processu oblongo rotundato complanato munita. *Pollinia* 2, minima, hemisphærica.

Camps VI *b* and VI *c*, 3900 and 5500 ft.

Allied to *D. erectifolium*, J. J. Sm., but with smaller leaves, flattened sheaths, and an entire lip. The flowers are solitary, fleshy, and dry black.

DENDROBIUM (§ REVOLUTA) DISSITIFOLIUM, Ridl., sp. nov.

Caulis validus, ultra 40 cm. altus, 5 mm. crassus. *Folia* lanceolata, acuminata, tenuiter coriacea, costata, 10 mm. longa, 1·5 cm. lata, apice valde inæqualiter biloba, vaginis 2 cm. longis costatis, ore integro. *Racemus* e basi vaginæ extrusus, gracilis, 5 cm. longus. *Flores* 2, mediocres. *Sepalum* posticum ovatum, 6 mm. longum, 4 mm. latum, lateralia late triangularia, flava, 6 mm. longa, æquilata, mento brevissimo obtuso. *Petala* tenuiora, oblonga, obtusa, apice rotundata. *Labellum* obcuneatum, magnum, 6 mm. longum, 5 mm. latum, lobis lateralibus lanceolatis acutis, lobo medio obovato lato æquilongo minute denticulato, carinis 2 crassis e basi in discum procurrentibus. *Columna* crassa, stelidiis brevibus erectis, clinandrio vix profundo; pollinia 2.

Camp VI *c*, 5500 ft.

The species seems to be most suitably placed among the *Revoluta*, but it is very distinct from any species of this section.

DENDROBIUM (§ PEDILONUM) STRICTUM, Ridl., sp. nov.

Rhizoma lignosum, radicibus longis validis, caulibus erectis ad 65 cm. altis 3 mm. crassis rigidis. *Folia* anguste lanceolata, acuta, stricta, carinata, 5 cm. longa,

5 mm. lata, vaginis 2 cm. longis purpureo-brunneis minute verrucosis. *Racemi* laterales foliis oppositi, 1·3 cm. longi, 5–6-flori. *Bracteæ* ovatæ vel lanceolatæ, cuspidatæ, 5 mm. longæ, 1 mm. latæ, pallidæ, brunnescentes, minute pustulosæ. *Pedicelli* 5 mm. longi. *Flores* 1 cm. lati, aurantiaci. *Sepalum* posticum ovatum, obtusum, 5 mm. longum, 4 mm. latum, lateralia latiora; mentum conicum, curvum, basi latum, 9 mm. longum. *Petala* ovata, obtusa, sepalo postico similia. *Labellum* 13 mm. longum, ungue lineari, lamina rotundata cochleata 5 mm. lata, margine in angulo ad junctionem cum ungue paucidenticulato abhinc integro apice magis carnoso denticulatoque, nervis 5 radiantibus incrassatis, tribus basi purpureo-brunneis. *Columna* stelidiis erectis magnis oblongis latis, filamento vix æquali.

Camps XI to XIII, 8300 to 10,500 ft.

A fine plant with remarkably narrow willow-like erect leaves and a good number of fair-sized orange flowers. The affinity is with *D. subclausum*, Rolfe, from which it differs in the spoon-shaped lip and very large hatchet-shaped stelidia.

DENDROBIUM (§ PEDILONUM) BRACHYCENTRUM, Ridl., sp. nov.

Caulis gracilis, 23 cm. longus, 2 mm. crassus, quadrangulus. *Folia* lanceolata, acuta, subtenuia (probabiliter juvenilia), carinata, mucronulata, apice et margine denticulata, 2 cm. longa, 7–10 mm. lata. *Racemus* brevis, in caule defoliato terminalis, circiter 12-florus. *Bracteæ* ovatæ, cuspidatæ, 2 mm. longæ. *Pedicelli* graciles, 1·4 cm. longi. *Flores* aurantiaci. *Sepala* 6 mm. longa, posticum anguste ellipticum, obtusum, 3 mm. latum, lateralia latiora, oblonga, 4 mm. lata; mentum breve, sacciforme, 4 mm. longum, obtusum. *Petala* linearia, oblonga, sepalo postico vix angustiora. *Labellum* spathulatum, cucullatum, apice rotundatum, denticulatum, 1 cm. longum, apice 4 mm. latum. *Columna* pede recto, stelidiis oblongis obtusis erectis. *Anthera* calvariformis, lævis.

Camps II to III, 500 to 2500 ft. "Flowers orange-red."

A small-sized plant, with for this section a very short rounded mentum, the lip resembling that of *D. vitellinum*, Kränzl.

DENDROBIUM (§ PEDILONUM) DEFLEXUM, Ridl., sp. nov.

Caulis sinuosus, 2 mm. crassus. *Folia* coriacea, elliptica, ovata, acuminata, obtusa, striata, 1·5 cm. longa, 7 mm. lata, basi in petiolum brevem attenuata, deflexa, vaginis 5 cm. longis striatis. *Racemus* brevis, terminalis, pauciflorus. *Bracteæ* ovatæ, cuspidatæ, pallidæ, 6 mm. longæ, 4 mm. latæ. *Pedicellus* gracilis, 2 mm. longus. *Sepalum* posticum ellipticum, 1·2 cm. longum, obtusum, lateralia oblonga, ovata, obtusa, apice rotundata, 1 cm. longa, 7 mm. lata; mentum cylindricum, crassum, curvum, 1 cm. longum. *Petala* ovata, lanceolata, 6 mm. lata, apice rotundata. *Labellum* ungue curvo, lamina cucullata sepalis breviore 1·6 cm. lata, margine ad basin laciniato. *Columna* crassa, stelidiis oblongis ovatis acutis, filamento subæquilongo lineari.

Camps XI to XII, 8300 to 11,000 ft. "Flowers deep orange."

Very distinct in the small, ovate, thick deflexed leaves and large flowers, with a thick strongly-curved blunt mentum. The lip is ladle-shaped, with a few rather long teeth at the angles of the blade. It is allied to *D. trichostomum*, Reichb. fil.

DENDROBIUM (§ PEDILONUM) XANTHELLUM, Ridl., sp. nov.

Caulis 40 cm. longus, 2 mm. crassus, superne flexuosus, internodiis 1 cm. longis. *Folia* desunt. *Racemus* subterminalis, gracilis, 3·2 cm. longus, circiter 15-florus. *Bracteæ* ovatæ, 1 mm. longæ. *Flores* parvuli, aurantiaci, 1·2 cm. longi, pedicellis 1·3 cm. longis gracilibus. *Sepalum* posticum lanceolatum, acutum, 6 mm. longum, lateralia latiora, 2 mm. lata; mentum conicum, crassiusculum, obtusum, 9 mm. longum. *Petala* lanceolata, acuta, sepalo postico similia. *Labellum* sepalis brevius, ungue lineari, apice angusto lanceolato acuto integro. *Columna* crassa, fovea stigmatica ampla rhomboidea, stelidiis inconspicuis parvis, margine clinandrii alto. *Anthera* apice rotundata nec retusa, minutissime papillosa. *Rostellum* bidentatum.

Camp VI *a*, 3100 ft.

Near *Dendrobium inamœnum*, Kränzlin, of British New Guinea, but with a linear acute, not cucullate entire lip.

DENDROBIUM (§ PEDILONUM) RHODOBOTRYS, Ridl., sp. nov.

Caules alti, 3 mm. crassi. *Folia* lanceolata vel ovato-lanceolata, coriacea, acuta, basi rotundata, 8 cm. longa, 2·5 cm. lata, vaginis 2 cm. longis, ore rotundo. *Racemus* terminalis, densus, multiflorus, 2 cm. longus. *Bracteæ* oblongæ, lanceolatæ, obtusæ, 5 mm. longæ, 2 mm. latæ, roseæ. *Flores* circiter 24, subcapitatim congestæ. *Pedicelli* graciles, 1·5 cm. longi. *Sepalum* posticum oblongum, obtusum, 4 mm. longum, 2 mm. latum, lateralia similia, apice rotundata; mentum breve, crassum, obtusum, rectum, 5 mm. longum. *Petala* latiora, ovato-oblonga, obtusa, omnia rosea. *Labellum* 1·2 cm. longum, ungue brevi lineari, callo transverso laminiformi ad apicem emarginato, lamina aurantiaca elongato-triangulari integra truncata 8 mm. longa apice 5 mm. lata, marginibus ad apicem involutis. *Columna* aurantiaca, ad apicem pedis angustata, stelidiis crassis oblongis obtusis, rostello lato recto, filamento breviusculo.

Camps VI *b* and VI *c*, 3900 and 5500 ft., and VII to VIII, up to 4900 ft.

Allied to *D. bracteosum*, Reichb. fil., but the flowers are much smaller, the lip-apex broad, minutely denticulate, with the callus as a low transverse emarginate bar between the foot and blade of the lip. A small piece of a plant with flowers little more than 1 cm. long, collected between Camps III and VIII, has exactly the same floral structure, and is doubtless the same plant with smaller leaves and flowers.

DENDROBIUM MITRIFERUM, J. J. Sm. in Bull. Dep. Agr. Ind. Néerl. xxxix. (1910) 10, and in Nova Guinea, vii. p. xciv *c*.

Camp VI *c*, 4900 ft.

Distrib. New Guinea.

The flowers seem to be pink, except the lip, which is apparently white with a yellow tip; the lip is remarkably short in proportion to the sepals. Smith gives the colour of the flowers as yellow with orange and orange-red. The plant, however, seems identical with the figure and description.

DENDROBIUM (§ PEDILONUM) SCABRIFOLIUM, Ridl., sp. nov.

Caulis 2 mm. crassus, fibrillis vaginarum tectus, ramosus. *Folia* coriacea, lineari-lanceolata, acuta, ad marginem flava, crenato-serrulata, 3 cm. longa, 3 mm. lata, vaginis 7 mm. longis costatis. *Racemus* terminalis, 1·5 cm. longus. *Bracteæ* ovatæ, abruptæ cuspidatæ, pallidæ, 2 mm. longæ. *Pedicelli* cum ovario rubro 2·5 cm. longi. *Sepalum* posticum ellipticum, obtusum, 1 cm. longum, 6 mm. latum; lateralia æquilonga et æquilata; mentum crassum, fere rectum, cylindricum, obtusum, 1 cm. longum, 5 mm. latum. *Petala* oblanceolata, obtusa, trinervia, sepalo postico paulo breviora, æquilata, omnia rosea. *Labellum* ungue angustissimo canaliculato gradatim in laminam obovatam planam margine minute denticulatam 1·7 cm. longam 0·5 mm. latam dilatato. *Columna* angusta, stelidiis rotundatis oblongis filamentum superantibus.

Camps XI to XII, 8300 to 11,000 ft.

Perhaps nearest to *D. Kuhlii*, Lindl., but with much smaller flowers. The stiff leaves have a cartilaginous yellow margin notched or almost denticulate from tip to base.

DENDROBIUM (§ CUTHBERTSONIA) SUBACAULE, Lindl. in Journ. Linn. Soc. iii. (1859) 11.

Camps III to IX, 2500 to 5500 ft.

Distrib. Island of Tidore near Ternate, and according to Kränzlin British New Guinea.

Kränzlin in the 'Pflanzenreich' confuses this species and the very distinct *D. puniceum*, Ridley, of British New Guinea, a very much larger-flowered plant, and gives as locality "Java, Gipfel des Berges Tidore (Blume! Herb. Reinwardt)." The locality is based on Lindley's description, "Java on the top of Mt. Tidore, Reinwardt." On the specimen in Herb. Lindley, the locality is given "in summo montis Tidore," Reinwardt. I can find no record of any mountain Tidore in Java; Reinwardt, however, did collect plants in the Island of Tidore, near Ternate, and not far from New Guinea, which he refers to as *Mons Tidore*. There can be little doubt that this was the locality referred to, and the locality Java is an error.

Except for this outlier, the whole of this section of *Dendrobium*, of which a number of species have been described, so far as is at present known, is confined to New Guinea. They are charming little dwarf plants with flowers very large for the size of the stems and leaves, and usually brilliant red, orange, or carmine, and would be a great addition to our plant-houses.

DENDROBIUM (§ CUTHBERTSONIA) CÆSPITIFICUM, Ridl., sp. nov.

Herba cæspitosa, 6 cm. alta. *Caules* gracilis, 1–1·5 cm. alti, diphylli, rhizomati tenui brevi insidentes. *Folia* angustissima, linearia, coriacea, carinata, in apice caulis articulata, 2 cm. longa, vix 1 mm. lata. *Flores* solitarii, terminales. *Bractea* tenuis, ovata, lanceolata, cuspidata, convoluta, 3 mm. longa. *Pedicellus* cum ovario 1 cm. longus. *Sepalum* posticum lanceolatum, acuminatum, lateralia latiora, triangulari-lanceolata, acuminata, 5-nervia, 7 mm. longa. *Petala* breviora

et angustiora, linearia-spathulata, acuta. *Labellum* lineare, lanceolatum, longe acuminatum, 8 mm. longum, angustum; mentum angustum, subcylindricum, acuminatum, 12 mm. longum. *Columna* breviuscula, lata; stelidia erecta, brevia, oblonga. *Anthera* pro columna magna oblongo-quadrata, margine recto, nec rostrata.

Camp VI *c*, 5500 ft.

Allied to the preceding *D. subacaule*, but with narrower paired leaves and larger flowers, with a larger acute point to the lip. The flowers appear to have had reddish sepals, pale petals, and a reddish-orange lip.

DENDROBIUM (§ CUTHBERTSONIA) LATERIFLORUM, Ridl., sp. nov.

Planta humilis, pseudobulbis perparvis approximatis 2 mm. longis cylindricis, radicibus longis. *Folium* solitarium, lanceolatum, obtusum, 3 cm. longum, 3 mm. latum, coriaceum, vagina 4 mm. longa, costata. *Racemus* ex apice pseudobulbi ortus, vagina multo brevior, 2 mm. longus, biflorus. *Bracteæ* 5–6 ovatæ, acuminatæ, carinatæ et mucronatæ, pallidæ parvæ. *Pedicellus* 7 mm. longus, trialatus. *Sepalum* posticum lanceolatum, 5 mm. longum, acutum, lateralia æquilonga, 2 mm. lata, acuta, carinata, mucronulata; mentum conico-cylindricum, obtusum, 6 mm. longum. *Labellum* sepalis brevius, lineari acuminatum, integrum. *Columna* oblonga; stelidia brevia, oblonga, obtusa. *Anthera* quadrata, obtusa.

Camp VI *b*, 3900 ft.

This very curious little species, of which there is only one specimen, differs from the others in possessing a very short pseudobulb, from the apex of which rises a single leaf, which is articulated to a channelled petiole or sheath, which is longer than the raceme. The raceme bears a number of ovate bracts, and a pair of flowers of an orange colour—in other respects resembling those of other species of this section; the winged petiole is also peculiar.

DENDROBIUM (§ CUTHBERTSONIA) CHLORINUM, Ridl., sp. nov.

Herba cæspitosa, 3–4 cm. alta, pseudobulbis conico-cylindricis flavis rugosis 5 mm. longis 2 mm. latis crassis. *Folia* terminalia, ad 4, linearia, angustissima, mucronulata, 2 cm. longa, 5 mm. lata. *Flores* singuli primulini, pedicellis cum ovariis 8 mm. longis. *Sepalum* posticum lanceolatum, acutum, 4 mm. longum, 1·5 mm. latum, lateralia latiora, triangularia, acuta, 2 mm. lata; mentum cylindricum, acuminatum, 6 mm. longum. *Petala* lanceolata, acuta, sepalo postico similia, paullisper breviora. *Labellum* lineare, angustum, apicem versus dilatatum, tunc abrupte acuminatum, acutum, aurantiacum, nervis in disco 5 carinatis. *Columna* recta, ventre plano, marginibus elevatis, carina media; stelidia parva, obscura, marginibus clinandrii elevatis, lobis 2 erectis brevibus oblongis obtusis, filamento breviore. *Ovarium* pilis albis tectum.

Camps VI *b*, 3900 ft.; VI *c*, 5500 ft.

Allied to the preceding, but distinguished by the thicker dilated pseudobulb, the yellow-green flowers with narrow sepals, and the hairy ovary.

Dendrobium (§ Cuthbertsonia) chrysornis, Ridl., sp. nov.

Herba cæspitosa vel patens, caulibus simplicibus 2–3 cm. longis 1 mm. crassis, vaginis striatis tectis. *Folia* 3, anguste lanceolata vel lineari-lanceolata, coriacea, 2–2·5 mm. longa, 2 mm. lata, basi angustata. *Flores* solitarii, pedicellis curvis gracilibus 1·5 cm. longis insidentes, aurantiaci. *Sepalum* posticum lanceolatum, acutum, 1 cm. longum, 3 mm. latum, lateralia falcata, 4 mm. lata, æquilonga, lanceolata, 4-nervia; mentum cylindricum, acuminatum, 1 cm. longum. *Petala* angusta, lanceolata, acuta, æquilonga, 2 mm. lata. *Labellum* e basi lineari oblongum, 3 mm. latum, apice acuteque abrupte acuminatum. *Columna* brevis, clinandrio profundo, filamento lineari. *Capsula* elliptica, 1 cm. longa, 5 cm. lata, perianthio e marcido coronata.

Camp XIII, 10,500 ft.

Of the same type as the last, but altogether much larger; the lip is broader and gradually widening from a linear claw ends in a wide truncated portion, from the centre of which rises a sharp almost triangular point. The sepals and petals are more acute.

Dendrobium (§ Cuthbertsonia) montigenum, Ridl., sp. nov.

Caules breves, ramosi, 3 cm. alti, vaginis ovatis cuspidatis tenuibus tecti. *Folia* 2 vel plura, linearia vel lineari-lanceolata, minute mucronata, coriacea, articulata, 1–1·5 cm. longa, 2 mm. lata. *Flos* in pedicello gracili 1–1·5 cm. longo, solitarius terminalis. *Bracteæ* 2, lanceolatæ, cuspidatæ, tenues, 4 mm. longæ, 1 mm. latæ. *Sepalum* posticum ellipticum, 6 mm. longum, 3 mm. latum, minute cuspidatum, trinerve, lateralia ovata, acuta, 9 mm. longa, 5 mm. lata; mentum cylindricum, acuminatum, ad 1 cm. longum. *Petala* subspathulata, obtusa, subæquilonga, angustiora. *Labellum* lineare, ad columnam versus basin adnatum, columnam vix superans cum apice subtriangulari acuto. *Columna* brevis, pede recto longo crassiusculo. *Anthera* subquadrata. *Capsula* ellipsoidea, 5 mm. longa.

Camp XIII, 10,500 ft.

Flowers apparently yellow or reddish.

Allied to *D. cæspitificum*, Ridl., but differing in the larger flowers, broader leaves, and not acuminate lip.

Dendrobium (§ Cuthbertsonia) fulgidum, Ridl., sp. nov.

Rhizoma gracile, repens, ramosum, ascendens, 5 cm. longum, 1 mm. crassum; caulibus flexuosis 3–4 cm. longis polyphyllis. *Folia* linearia, acuta, 1·5 cm. longa, 1 mm. lata, basi angustata, in pseudobulbis cylindricis 3 mm. longis articulata. *Flores* magni, aurantiaci, in apicibus ramorum solitarii. *Bractea* tubulosa, tenuis, 2 mm. longa, ad basin ampliata. *Pedicellus* cum ovario gracili 1·5 cm. longus. *Sepalum* posticum ellipticum, obtusum, 6-nerve, 1 cm. longum, 5 mm. latum, lateralia latiora, ovata; mentum conicum, acuminatum, 1·5 cm. longum. *Petala* oblonga, ovata, rotundata, 1·6 cm. longa, 8 mm. lata. *Labellum* petalis brevius, integrum, basi oblongo-obovatum, rotundatum, 1·5 cm. longum, 1 cm. latum, pustulis parvis in pagina superiore præsertim in nervis munitum. *Columna*

recta, majuscula, stelidiis magnis rotundatis semiovatis, antheram superantibus. *Anthera* magna, conico-triangularis, obtusa, papillosa, carinis 2 ab apice ad rostrum descendentibus, filamento lato. *Pollinia* elliptica, curva, canaliculata.

Camps X to XI, 6700 to 8300 ft.

The creeping rhizome emits sinuous branches, which bear very short pseudobulbs or branchlets of one internode, each of which bears a leaf. The flowers are very large and showy, in proportion to the size of the plant.

Var. PURPUREA, Ridl., var. nov.

Pedicelli 2·5 cm. longi. *Flores* purpurei. *Sepalum* posticum 2 cm. longum, 1 cm. latum, lateralia æqualia. *Petala* 1·4 cm. lata. *Anthera* pubescens.

From the same locality; apparently a larger-flowered form with deep rose-purple flowers.

DENDROBIUM (§ CUTHBERTSONIA) EUPHUES, Ridl., sp. nov.

Herba cæspitosa, pseudobulbis congestis cylindro-conicis flavis rugosis 5 mm. longis. *Folia* 2, coriacea, elliptica, ovata, 5 mm. longa, 4 mm. lata, superne atroviridia, pustulata, apice mucronulata, in dorso purpurascentia, striata. *Flores* singuli, magni. *Bractea* tubulosa, 1 mm. longa. *Pedicellus* cum ovario 1 cm. longus, pustulatus. *Sepalum* posticum oblongum, obtusum, 1 cm. longum, 5 mm. latum, lateralia æquilonga, latiora. *Petala* elliptica, obtusa, 1 cm. longa, 5 mm. lata; mentum conico-cylindricum, 1 cm. longum. *Labellum* oblongum, apice obtusum, 1 cm. longum, 5 mm. latum, aurantiacum, punctis marginalibus rubris. *Columna* pallida; stelidia oblonga, erecta, rotundata, flava. *Anthera* oblonga, quadrata, pubescens. *Rostellum* oblongum, rectum.

Camp VI *c*, 5500 ft.

The flowers appear to have been orange-coloured, with spots and veins of red on the lip, or entirely crimson-red.

DENDROBIUM (§ CUTHBERTSONIA) COCCINELLUM, Ridl., sp. nov.

Herba pseudobulbis 1–2·5 cm. longis cylindricis flavis rugosis. *Folia* 2, elliptica, lanceolata, obtusa, 2–2·8 cm. longa, 8–9 mm. lata, carnoso-coriacea, superne pustulata, subtus (sicca) rugosa. *Bracteæ* 2, tenues, lanceolatæ, acuminatæ, 4 cm. longæ, nec tubulosæ. *Pedicellus* cum ovario 1·2 cm. longus, pustulosus. *Flos* kermesinus. *Sepalum* posticum lanceolatum, obtusum, 1 cm. longum, 4 mm. latum, lateralia ovata, acuta, 1·2 cm. longa, 5 cm. lata; mentum conicum, versus apicem attenuatum, obtusum, 1 cm. longum. *Petala* elliptica, obtusa, quam sepala paullo breviora. *Labellum* quam sepala brevius, ex ungue lineari-lanceolatum, acutum, margine minute pustulato aurantiaco, costa centrali kermesino. *Columna* brevis, crassa, ut videtur alba; stelidia erecta, oblonga, rotundata, flava. *Anthera* oblongo-conica, apice retusa, pubescens, costis 2 elevatis ab apice versus marginem ductis.

Camp III, 2500 ft.

"A little carmine-coloured orchid; leaves above dark green, below deep dull crimson."

Allied to *D. cerasinum*, Ridl., but distinguished by the much longer pseudobulbs and larger pustulate leaves, the lanceolate bracts, and the acute more fleshy lip. The column seems exactly similar in the two species.

DENDROBIUM (§ BOLBODIUM) BREVICAULE, Rolfe, Kew Bulletin, 1899, 110.

Camps XIII, 10,500 ft., and VIII to IX, 4900 to 5500 ft.

"Outer base violet; inner lip tipped scarlet; petals pale silvery grey, tinged with violet at the tips."

Distrib. New Guinea; also obtained on Mt. Scratchley by Giulianetti.

Unfortunately Rolfe's description was made on a mixture of two plants, one of which is *Dendrobium chrysornis*, Ridl. As his account of the species fits Kloss's plant, excepting the stem and the leaves, I confine myself to describing these parts:—

Caules congesti, 6 cm. longi, cylindrici, 4 cm. crassi, internodiis 4–5, vaginis pallidis lanceolatis vel ovato-lanceolatis tecti. Folia ad 4, inæqualia, 3–5 cm. longa, 5 cm. lata, lineari-lanceolata vel elliptico-lanceolata.

I also notice that the mentum is shortly bifid—a point not recorded by Rolfe.

Kränzlin refers this species, which he has apparently not seen, to the section *Pedilonum*, though, as he says, it resembles a *Bolbodium*. Its affinity is undoubtedly with *D. subacaule*, Lindl., and the allied species described in this paper.

DENDROBIUM MACROLOBUM, J. J. Sm. in Nova Guinea, xii. t. 10. fig. 27.

Camps IX to XI, 5500 to 8300 ft.

DENDROBIUM CHIONANTHUM, Schlechter, in K. Schum. & Lauterb. Nachtr. Fl. Deutsch. Schutzg. Südsee, 157.

Camp VI *b*, 3900 ft.

Endemic in New Guinea.

DENDROBIUM CHAMÆPHYTUM, Schlechter, l. c. 156.

Camp VI *c*, 5500 ft.

Endemic in New Guinea.

DENDROBIUM (§ BOLBODIUM) CITRINUM, Ridl., sp. nov.

Herba cæspitosa, pseudobulbis cylindricis 1 cm. longis 1 mm. crassis rugosis. *Folium* solitarium, lineari-oblongum, crasse coriaceum, basi breviter petiolatum, 2–3 cm. longum, 5 mm. latum, carina in dorso elevato in mucronulum acutum desinente, petiolo 1 mm. longo. *Flos* solitarius, albo-flavus, pedunculo brevissimo 2 mm. longo. *Bractea* tenuis, tubulosa, æquilonga. *Pedicellus* longus, gracilis, albus, 2·5 cm. longus. *Sepalum* posticum lanceolatum, acutum, 6 mm. longum, 2 mm. latum, lateralia latiora, lanceolata, obtusa, ad basin angustata, 1 cm. longa, 5 mm. lata; mentum longum, cylindricum, curvum, 7 cm. longum. *Petala* minora, ovata, lanceolata, 3 mm. longa, acuta. *Labellum* breve, ungue tubuloso, lamina

angusta triloba 5 mm. longa, lobis lateralibus oblongis ovatis obtusis, lobo medio longiore obcuneato cuspidato, carina mediana aurantiaca crassa carnosa tristriata. *Columna* longiuscula, superne dilatata, alis majusculis rhombodeis-triangularibus. *Anthera* parva, ovata, rostro bifido. *Pollinia* hemisphærica. *Ovarium* tricarinatum.

Camp VI *c*, 5500 ft.

Allied to *D. macrolobum*, J. J. Sm., but with much shorter stems and a narrow 3-lobed lip and a much longer column. The claw of the lip seems to be tubular, the margins being joined above. The flowers seem to have been yellowish-white with an orange keel.

DENDROBIUM (§ SPECIOSA) AMPHIGENYUM, Ridl., sp. nov.

Caules superne paullisper dilatati, flavi, canaliculati, 12 cm. longi, 3 mm. crassi, diphylli. *Folia* ad apicem caulis 2, coriacea, elliptica, lanceolata, apice paullo angustata, obtusa, basi angustata, 6 cm. longa, 1·5 cm. lata, petiolis canaliculatis 5 mm. longis. *Pedunculus* terminalis, erectus, gracilis, 2·5 cm. longus, pedicellis 2 cm. longis. *Bractea* ad basin pedunculi ovata, lanceolata, 3 mm. longa; bractea interior tubulosa, 2 mm. longa; bracteæ florales lanceolatæ, acuminatæ, 2 mm. longæ. *Flores* 2, in caule quoque mediocres. *Sepala* late ovata, obtusa, 5 mm. longa et lata; mentum bigibbum, apice latum, saccatum, subglobosum, 4 mm. longum, roseum, superne prope labellum cum gibbo minore. *Petala* tenuiora, angustiora et breviora, spathulata, venis roseis. *Labellum* ambitu late obhastatum, 5 mm. longum, 7 mm. latum, ungue brevi, lobis lateralibus elongatis patentibus lanceolatis obtusis, lobo medio breviore bilobo lobis 2 brevibus oblongis cum mucronulo minuto roseo in sinu orto, cum carinis 2 e basi ad discum incrassatis subpyriformibus roseis et pulvino oblongo albo versus apicem lobi sito. *Columna* lata, subquadrata, alis brevibus crassis rotundatis, fovea stigmatica lata quadrata, marginibus rectis, filamento lineari, pede longo, admodum curvo. *Rostellum* latum, rectum.

Camp VI *a*, 3100 ft.

Allied to *D. Kingianum*, Bidw., of Australia, but with a very different four-lobed lip. The flowers appear to have been mainly rose-colour with a yellow lip.

DIPLOCAULOBIUM GRANDIFLORUM, Ridl., sp. nov.

Pseudobulbus ad basin conicus, gradatim in caulem validum 40 cm. longum basi 1 cm. superne 3 mm. crassum angulatum purpureo-brunneum politum apice dilatatum attenuatus. *Bracteæ* ochreæ, lanceolatæ, acuminatæ, acutæ, 1·5 longæ. *Pedicellus* cum ovario 0·5 cm. longus. *Sepalum* posticum lanceolatum, acuminatum, 2·5 cm. longum, 7 mm. latum, lateralia lanceolata, acuminata, 2·5 cm. longa, 4 mm. lata; mentum ovatum, obtusum, curvum, 5 mm. longum; omnia rosea. *Petala* elliptica, obtusa, alba, 2 cm. longa, 1 cm. lata. *Labellum* breve, 8 mm. longum, ungue superne dilatato, lobis lateralibus oblongis truncatis 2 mm. longis, lobo medio oblongo obtuso 2 mm. longo, carina in disco inter lobos laterales elevata. *Columna* 2 mm. alta, basi dilatata, pede 5 mm. longo.

Camp VI *b*, 3900 ft.

A species very distinct by its large flower, with elliptic petals narrowed at the base and broader than the sepals, and the very small lip.

DIPLOCAULOBIUM LINEARIFOLIUM, Ridl., sp. nov.

Pseudobulbi in rhizomate 3 mm. crasso congesti, lageniformes, 5 mm. longi, 4 mm. crassi, superne filiformes, 5–6 cm. alti, vaginis ad basin papyraceis tenuibus lanceolatis acuminatis 3 cm. longis. *Folium* lineare, acuminatum, coriaceum, 10 cm. longum, 2 mm. latum. *Bractea* linearis, ochrea, polita, 1 cm. longa, 1 mm. lata. *Pedicellus* filiformis, tenuis, 2–3·5 cm. longus. *Flos* solitarius, raro 2. *Sepalum* posticum basi lineare, filiforme, 2·5 cm. longum, lateralia e basi triangulari filiformia; mentum curvum, obtusum, 5 mm. longum, ad basin 4 mm. latum. *Petala* e basi lineari filiformia, 2 cm. longa. *Labellum* panduratum, 1 cm. longum, basi dilatatum, in medio angustatum, apice ovato obtuso 3 mm. lato, margine undulato, carinis 2 sinuatis e basi ad medium lobi terminalis excurrentibus approximatis parallelis, disco inter eas pulverulento. *Columna* brevis, margine clinandrii denticulato. *Anthera* campanulata, pustulata, filamento 1 mm. longo.

Camps III, 2500 ft., and VI *b*, 3900 ft.

Perhaps nearest to *D. gracilentum*, Schlechter, but with a very different lip, more resembling that of *D. crenulatum*, J. J. Sm., from the latter distinguished by much larger petals and sepals. The apices of the sepals and petals and the tip of the mentum are pink.

DIPLOCAULOBIUM HUMILE, Ridl., sp. nov.

Pseudobulbi congesti, basi cylindrico-conici, 1 cm. longi, rugosi, superne graciles, 2 cm. longi. *Folium* lineare, apice acute bifidum, 5 cm. longum, 2 mm. latum. *Bractea* lanceolata, acuta, 6 mm. longa. *Pedicellus* filiformis, 2 cm. longus. *Sepala* e basi triangulari caudiformia, 3 cm. longa; mentum breve, obtusum, 3 mm. longum. *Petala* e basi lineari filiformia. *Labellum* 5 mm. longum, 15 mm. latum, oblongum, obtusum, apice rotundato integro, nervis 3 flavis undulatis in disco apicem versus in unum conjunctis. *Columna* parva; stelidia erecta, dentiformia. *Anthera* conica, filamento lineari longiusculo.

Camp VI *a*, 3100 ft.

The flowers appear to have been white, the lip with a purple patch on each side, and yellow keels, the column dark brown and the anther white.

Allied to *D. gracilentum*, Schlechter, but with filiform petals and sepals, and three nerves on the lip.

DIPLOCAULOBIUM FILIFORME, J. J. Sm. Ic. Bogor. ii. 73, t. 113 D.

Camp I, 700 ft., to Camp III, 2500 ft., and Camp VII, 3900 ft.

Distrib. ——?

I have little doubt that this is the species intended by Smith, and based on a plant of unknown origin in Hort. Buitenzorg; but if so, the figure above quoted is a very poor one.

PSEUDERIA NIGRICANS, Ridl., sp. nov.

Planta habitu *P. foliosæ* (Brongn.), Schlechter, caule gracili 3 mm. crasso. *Folia* lanceolata, acuminata, acuta, basi rotundata, tenuia, (sicca atro-brunnea), 8·4 cm. longa, 1·5 cm. lata, costis gracilibus 3–5, vaginis 7–10 cm. longis costatis, ore integro. *Racemi* laterales, paullo infra os vaginæ extrusæ, 1 cm. longi. *Bracteæ* oblongæ, obtusæ, imbricatæ, 2 mm. longæ, plures. *Pedicelli* bini, patentes, graciles, ad 1·6 cm. longi. *Sepalum* posticum lineare, obtusum, carnosum, 12 mm. longum, 1·5 mm. latum, lateralia oblonga, lanceolata, carnosa, 2 mm. lata. *Petala* linearia, falcata, tenuia, 6 mm. longa, angustiora, nervo medio incrassato. *Labellum* ungue longiusculo, obovatum, 7 mm. longum, 3·5 mm. latum, carnosum, apice papillosum, marginibus undulatis, carina media fere ad apicem incrassata. *Columna* gracilis, arcuata, superne vix incrassata, clinandrio haud profundo, marginibus elevatis. *Rostellum* integrum, latum. *Stigma* oblongum, ventre canaliculato. *Anthera* lateraliter compressa, crista angusta in dorso convexa, loculis angustis. *Pollinia* elliptica, angusta.

Camps III, 2500 ft., and VI *a* to VIII, 3100 to 4900 ft.

This species has the habit and general form of the flowers of *Dendrobium foliosum*, Brongn. Voy. Coq., Bot. 203, t. 43 (*Pseuderia foliosa*, Schlechter), of which I have seen no type, but it differs in the papillose lip and in the shape of the anther, which is figured and described as acuminate. The anther in this species is small, and laterally flattened with a narrow rounded crest running down the back, the anther-cells are erect, elliptic, parallel, and contain two pairs of closely appressed narrow elliptic pollinia.

The plant referred by me to *Eria foliosa* in Forbes's collection from Sogere in New Guinea, in Journ. Bot. xxiv. (1886) p. 326, is neither this plant nor the *Dendrobium foliosum* of Brongniart. The column and anther resemble those of *D. nigricans*, but the lip is obovate with a very blunt papillose point, while the pedicels are much shorter, the flowers smaller, and the leaves broader.

Dendrobium spinescens, Lindl. in Journ. Linn. Soc. iii. (1859) p. 14, which is given by Kränzlin as a synonym of *D. foliosum*, Brongn., is based on an extremely rough sketch by Reinwardt without details. Lindley saw no specimen of it, and the locality is doubtful. It differs entirely from the figure of *D. foliosum*, Brongn., in the flowers being apparently sessile, instead of long-pedicellate, and very much larger, with patent oblong obtuse petals and sepals. The foliage and the form of the raceme resemble those of *D. foliosum*. I do not think it is possible now to guess what plant Reinwardt intended to figure, but it could not have been *D. foliosum*.

Kränzlin, in 'Pflanzenreich,' iv. 50, II. B, 21, classes *D. foliosum*, Brongn., and *D. simile*, Schlechter, in the section *Eugrastidium* of *Dendrobium*, from which he excludes all of Blume's species of *Grastidium* except *G. rugosum*. But *Grastidium*, if confined to the typical species and its allies, is to me a sufficiently distinct section, which I retain. It is characterised by its leafy stem with a short two-flowered raceme protruding through the leaf-sheath, and subtended by two pairs of bracts, one usually short and semi-orbicular, the other longer. Schlechter has made the genus *Pseuderia* for *D. foliosum*.

BULBOPHYLLUM (§ SESTOCHILUS) MACRANTHUM, Lindl. Bot. Reg. 1844, t. 13.

Launch Camp, at sea-level.

Distrib. Malay Peninsula and Islands.

BULBOPHYLLUM (§ SESTOCHILUS) WOLLASTONII, Ridl., sp. nov.

Pseudobulbi congesti, conici, 2 cm. longi, vaginis magnis ovatis papyraceis carinatis mucronatis 2 cm. longis 1·5 cm. latis. *Folium* lanceolatum, acutum, acuminatum, subcoriaceum, pallide viride (in sicca), carinatum, ad basin angustatum, 14·5 cm. longum, 3 cm. latum. *Flos* solitarius in pedicello 1 cm. longo. *Sepalum* posticum lanceolatum, acutum, 1 cm. longum, 2 mm. latum, lateralia lanceolata, acuta, falcatula, subsimilia, paullo latiora, sicca pluricostata. *Petala* 4 mm. longa, late lanceolata, ovata, acuminata, carinata, punctata. *Labellum* breve, carnosum, curvum, linguiforme, papillosum, purpureum. *Columna* pro sectione alta, crassa, pede brevi, stelidiis latis linearibus obtusis petalis subæquilongis. *Anthera* ovata, carinata, carina et papilla in apice obscura.

Camp VI *a*, 3100 ft.

Allied to *B. patens*, King, but with a very different column and a curved lip. The flowers, which seem to have been of a stiff texture, have dried dark brown, and show rather strong ribs or elevated nerves. The stelidia are remarkably long for this section.

BULBOPHYLLUM (§ GRANDIFLORA) KLOSSII, Ridl., sp. nov.

Pseudobulbi conici, 1·5 cm. longi. *Folium* ellipticum, versus basin acuminatum, apice rotundatum, obtusum, coriaceum, 5 cm. longum, 2 cm. latum, petiolo canaliculato 1 cm. longo. *Pedunculus* 6 cm. longus, vaginis acuminatis 3, maxima 1 cm. longa. *Bractea* lanceolata, acuminata, 1·5 cm. longa. *Ovarium* 2 mm. longum. *Sepalum* posticum basi lanceolatum, elongatum, lineare, obtusum, 4 cm. longum, ad basin 5 mm. latum, lateralia 5·5 cm. longa, linearia, torta, ad basin 3 mm. lata. *Petala* e basi ovata triangularia, 4 mm. longa, subabrupte caudata, caudis teretibus antenniformibus 9 mm. longis. *Labellum* minimum, carnosum, curvum, fere curvatum, apice acuto, 2 mm. latum. *Columna* brevis, crassus, pede bis longiore, stelidiis minimis lanceolatis linearibus acutis.

Camps IX to XI, 5500 to 8300 ft.

Allied to *B. longisepala*, Rolfe, but much smaller, with very much the same form, and apparently the same brown tessellate colouring, but the petals are curiously prolonged into conspicuous antenna-like processes. Very close to, if not identical with this, is the plant figured by J. J. Smith under the name of *B.? trachyanthum*, Kränzl. Nov. Guinea, xii. t. 22; but this species is not papillose, as is figured.

BULBOPHYLLUM (§ MONANTHA-PARVA) CULEX, Ridl., sp. nov.

Rhizoma longe repens, gracile, pseudobulbis 3–4 cm. dissitis erectis conicis 2 mm. longis. *Folium* lanceolatum, obtusum, basi angustatum, 1 cm. longum, 15 mm. latum. *Scapus* gracillimus, filiformis, 3 cm. longus. *Ovarium* cum pedicello 1 mm. longum. *Bractea* minuta, tubulosa, urniformis, 5 mm. longa. *Sepalum* posticum

lanceolatum, lineare, 4 mm. longum, lateralia æquilonga, ad basin dilatata, gibbosa, lanceolata, linearia, 1 mm. lata, glabra, straminea. *Petala* fere æquilonga, lanceolata, apicibus longis filiformibus. *Labellum* æquilongum, angustissime lineare, obtusum, carnosum, pilis albis barbatum, kermesinum (in sicca violaceum). *Columna* parva, purpurea, pede longo.

Camp III, 2500 ft.

This belongs to the set of which *B. striatellum*, Ridl., is a type, with equal similar petals. It is remarkable for the equal sepals, long awned petals, and the very narrow elongated bearded lip.

BULBOPHYLLUM (§ EPHIPPIUM) EPHIPPIUM, Ridl. Mat. Flor. Penins., Monocot. vol. i. 78. *Ephippium ciliatum*, Blume, Bijdr. 309, t. 65. *Cirrhopetalum Blumei*, Lindl. Gen. and Sp. Orch. Pl. 59.

Camp VI *a*, 3100 ft.

Distrib. Malay Peninsula and Islands.

Smith gives two varieties of this species from New Guinea, which Schlechter considers to be specifically distinct. I am inclined to follow Smith in considering them to be varieties of a variable species.

BULBOPHYLLUM (§ EPHIPPIUM) ARACHNIDIUM, Ridl., sp. nov.

Rhizoma gracile, pseudobulbis 3–4 mm. remotis conico-cylindricis 1 cm. longis. *Folium* lineari-lanceolatum, basi angustatum, apice acuminatum, coriaceum, 5 cm. longum, 4 mm. latum, petiolo ad basin alato sulcato 3 mm. longo. *Scapus* gracilis, 5 cm. longus. *Bractea* tenuis, lanceolata, involuta, 2 mm. longa. *Sepalum* posticum lanceolatum, acuminatum, caudatum, 1·3 cm. longum, 1·5 cm. latum, lateralia ovata, caudata, falcata, 1·3 cm. longa, 3 mm. lata, nervis 4. *Petala* triangularia, breviter caudata, pustulosa, 3 mm. longa. *Labellum* carnosum, ovatum, semi-orbiculatum, curvum, caudatum, 6 mm. longum. *Columna* minima, pede brevi, stelidiis triangularibus caudatis.

Camp I, 700 ft.

A small-flowered species with short rounded falcate sepals terminated by a filiform tail, allied to *B. Ephippium*, Ridl., but with much smaller, glabrous, and different sepals. The flowers appear to have been pink or violet.

BULBOPHYLLUM SCAPHOSEPALUM, Ridl., sp. nov.

Pseudobulbi subremoti, cylindrici, vix ad basin incrassati, 3-4 cm. longi, 3 mm. lati (in sicca). *Folium* tenuiter coriaceum, lanceolatum, acuminatum, acutum, ad petiolum attenuatum, 13–18 cm. longum, 3 cm. latum, carina vix distincta, petiolo 1·5 cm. longo. *Scapus* uniflorus, gracilis, 4–5 cm. longus. *Bractea* tubulosa, apice lanceolata, acuminata, cuspidata, 8 mm. longa. *Pedicellus* cum ovario 2 cm. longus. *Sepalum* posticum lineare, acuminatum, ad 4 cm. longum, 2 mm. latum, antica connata, 3 cm. longa, 1 cm. lata, apicibus liberis triangularibus ovatis acutis 1 cm.

longis. *Petala* minima, lanceolata, acuminata, cuspidata, 2 mm. longa. *Labellum* ungue longo angusto, lamina elliptica oblonga plana obtusa pustulosa 3 cm. longa 1 cm. lata. *Columna* gracilis, elongata, quam petala longior, basi dilatata alata, margine clinandrii elevato dentato. *Anthera* elliptica. *Pollinia* ellipsoidea, complanata, 2.

Camps VI *b* and VI *c*, 3900 to 5500 ft.

A very curious plant with apparently dark purple flowers, remarkable for the large thin lip, the connate sepals, and the unusually long slender column, which, however, is somewhat parallelled in *B. callipes*, J. J. Sm.

BULBOPHYLLUM SCITULUM, Ridl., sp. nov.

Rhizoma elongatum, radicibus longis gracilibus, pseudobulbis sæpius 2 cm. remotis cylindricis vix ad basin incrassatis 1 cm. longis, squamis ovatis papyraceis magnis inclusis. *Folium* lineari-lanceolatum, obtusum, minute mucronulatum, ad basin angustatum, tenuiter coriaceum, 11 cm. longum, 1 cm. latum, petiolo distincto 2 cm. longo canaliculato. *Scapi* graciles, 8–9 cm. longi. *Bractea* infundibuliformis, dente acuto 3 mm. longo. *Pedicellus* cum ovario 2 cm. longus. *Flos* majusculus, late expansus. *Sepalum* posticum angustissimum, lineare, caudatum, 2·5 cm. longum, lateralia lanceolata, longe caudata, majora 3·5 cm. longa, basi 3 mm. lata, in margine superiore purpurascentia, in inferiore flavescentia. *Petala* parva, oblonga. *Labellum* ungue brevi 2 mm. longo, lamina plana lanceolata acuminata caudata aurantiaca rugosa subtus pallidiora flava rugosa 1·3 cm. longa 2 mm. lata. *Columna* elongata, curva, ad basin dilatata, clinandrii margine dentato.

Camp VI *a*, 3100 ft.

This species belongs to a well-marked group, characterised by the long curved column, with the margins of the clinandrium and stelidia toothed, and a more or less lanceolate flat lip with a short but distinct claw. The group seems peculiar to New Guinea, and includes *B. xanthoacron*, *B. coloratum*, *B. cruciatum*, *B. stabile*, and *B. callipes*, all of J. J. Smith, and some others. The above species has larger flowers, with longer acuminate sepals and lip, than in any of the species mentioned.

BULBOPHYLLUM ALGIDUM, Ridl., sp. nov.

Rhizoma elongatum, gracile, 2 mm. crassum, pseudobulbis remotis 2 dissitis cylindricis gracilibus 6 mm. longis. *Folium* lineari-oblanceolatum, acutum, in petiolum angustatum, 5 cm. longum, 4 mm. latum, petiolo 1 cm. longo. *Scapus* validulus, 14 cm. altus. *Bractea* infundibuliformis, 6 mm. longa, apice lanceolata, acuminata, 2 mm. longo. *Flos* mediocris. *Sepala* trinervia, lanceolata, caudata, 3·1 cm. longa, ad basin 5 mm. lata, posticum paullo angustius. *Petala* minuta, triangularia. *Labellum* brevissime unguiculatum, ungue vix 1 mm. longo, lamina lanceolata caudata carnosa, limbo 1 cm. longo 5 cm. lato, caude 1 cm. longo. *Columna* minima, stelidiis minutis obscuris.

Camps XIII to XIV, 10,500 to 12,500 ft.

Near *B. scitulum*, Ridl., in form and habit, but differing in the very small column, narrower leaves, and stouter scape, and the much shorter claw to the lip. The flower dries black.

BULBOPHYLLUM (§ UNIFLORÆ-PARVÆ) PANISCUS, Ridl., sp. nov.

Planta humilis, rhizomate 6 cm. longo crassiusculo, pseudobulbis cylindricis horizontalibus apice ascendentibus 1·5 cm. longis 2 mm. crassis (in sicca). *Folium* lanceolatum, acuminatum, ad basin breviter angustatum, siccum nigricans, 6 cm. longum, 8 mm. latum. *Scapus* gracillimus, 3 cm. longus, uniflorus. *Bractea* 4 mm. longa, infundibuliformis, longe acuminata. *Sepala* subæqualia, lanceolata, acuta, lateralia 9 mm. longa, 1·5 mm. lata, flavescentia, posticum angustius. *Petala* late lanceolata, triangularia, acuta, 1 mm. longa, flavescentia, prope margines nigropunctata, ad basin rufo-maculata. *Labellum* ad basin carnosum, subtus gibbosum, 5 mm. longum, auriculis rotundatis, lamina plana oblonga obtusa horizontali. *Columna* brevissima, pede brevi, stelidiis caudatis e basi lanceolata elongatis. *Anthera* erecta, conica, obtusa.

Camp VI *b*, 3900 ft.

A single specimen of this small species, which belongs to the small single-flowered section in which the sepals are equal and the lip of fairly large size and flat, with a fleshy base and thinner tip.

BULBOPHYLLUM STELLULA, Ridl., sp. nov.

Herba parvula, pseudobulbis congestis cylindricis basi paullo incrassatis rugosis. *Folia* coriacea, elliptica, lanceolata, ad basin angustata, superne sulcata, 1·5 cm. longa, 5 mm. lata, breviter petiolata. *Scapus* filiformis, 3 cm. longus; pedicellus cum ovario 5 mm. longus; bractea tubulosa, cylindrica, dente acuto instructa, 2 mm. longa, ovario appressa. *Sepalum* posticum lanceolatum, acuminatum, 7 mm. longum, lateralia similia, latiora, 1 mm. lata. *Petala* ovata, subulata, columnæ dimidio æquilonga. *Labellum* elongatum, lineari-oblongum, obtusum, 7 mm. longum, basi pilis albis sericeis vestitum. *Columna* longa, curva, arcuata, basi alata, pede brevi, margine clinandrii dentato, stelidiis oblongis latis dentatis.

Camp VI *a*, 3100 ft.

Allied to *B. callipes*, J. J. Sm., but the lip is as long as the sepals and hairy at the base.

BULBOPHYLLUM ISCHNOPUS, Schlechter, in K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 205.

Var. MAJOR, Ridl. (var. nov.): floribus multo majoribus.

Camps IX to XI, 5500 to 8300 ft.

The only difference that I see between this and *B. ischnopus*, Schlechter, is that the flowers are nearly twice as big.

BULBOPHYLLUM (§ HIRTULA) PLAGIATUM, Ridl., sp. nov.

Pseudobulbi congesti, conici, 2 cm. longi, 0·5 cm. crassi. *Folium* lanceolatum, subacutum, ad basin angustatum, subfalcatum, superne sulcatum, coriaceum, siccum pallide viride, 7 cm. longum, 1·2 cm. latum, carina subtus elevata, petiolo

sulcato 1 cm. longo. *Scapus* 9–10 cm. longus, gracilis, vagina ad basin sita 5 mm. longa. *Bractea* infundibuliformis, dente longo. *Pedicellus* cum ovario 5 mm. longus. *Sepala* lanceolata, acuminata, caudata, 1·7 cm. longa, 2 mm. lata, posticum angustius 5 mm. latum, striis rubris tribus. *Petala* quam columna breviora, obcuneata, retusa, truncata, minima. *Labellum* carnosum, rectum, linguæforme, obtusum, basi emarginato flavescens, 3 mm. longum, ungue brevi, callo transverso rotundato lamelliformi. *Columna* brevissima, oblonga, crassa, stelidiis brevibus lineari-subulatis erectis longioribus.

Camp VI *a*, 3100 ft.

Allied to *B. callipes*, J. J. Sm., but with a very short column, and transverse callus at the base of the lip.

BULBOPHYLLUM (§ HIRTULA) FAUNULA, Ridl., sp. nov.

Rhizoma gracillimum, pseudobulbis 4 mm. dissitis conico-cylindricis 1 cm. longis, ad basin 2 mm. crassis (in sicca). *Folium* oblongo-lanceolatum, acutum, mucronulatum, ad basin angustatum, tenuiter coriaceum, 4 cm. longum, 4 mm. latum, petiolo brevissimo canaliculata. *Scapi* graciles, 4 cm. longi. *Bractea* infundibuliformis, 4 mm. longa, dente acuto. *Pedicellus* cum ovario 1 cm. longus. *Flos* solitarius, mediocris. *Sepala* subæqualia, lanceolata, acuminata, acuta, 7-nervia, 1·7 cm. longa, 4 mm. lata. *Petala* lanceolata, falcata, acuta, 2 mm. longa, præter nervum medium atrum et punctos atros pallida. *Labellum* lanceolatum, ovatum, apice filiforme, basi emarginatum, carnosum, auriculis (lobis) majusculis rotundatis elevatis, lamina plana ovata in caudam filiformem attenuata 7 mm. longa. *Columna* erecta, pede æquilongo, stelidiis erectis antheram haud superantibus linearibus. *Anthera* ovata, plana, rostro oblongo lato obtuso.

Camp VI *a*, 3100 ft.

Allied to *B. paniscus*, Ridl., with subequal sepals and spotted petals; the lip, however, is very different, being ovate-lanceolate with a long filiform tail.

BULBOPHYLLUM VEXILLARIUM, Ridl., sp. nov.

Rhizoma gracile, pseudobulbis cylindricis 7 mm. longis congestis ascendentibus vaginis pallidis tectis. *Folium* lineare, 4 cm. longum, 2 mm. latum, ad basin breviter angustatum, apice breviter attenuatum, obtusum. *Scapus* filiformis, 7–7·5 cm. longus, uniflorus, vagina basali tubulosa apice lanceolata acuta 5 mm. longa. *Bractea* breviter poculiformis, dente subulato ovario 2 mm. longo subsessili æquilongo. *Sepala* caudata, angustissima, 3 cm. longa, ad basin vix 1 mm. lata, flava, lateralia connata, apicibus brevibus liberis, basi gibbosa. *Petala* linearia, caudata, paullo (ad 2 mm.) breviora, glabra. *Labellum* 2 mm. longum, purpureum, lanceolatum, ungue brevissimo decurvo, auriculis parvis rotundatis erectis tenuibus, marginibus laminæ erectis albo-pilosis, apice plano haud crasso flavo. *Columna* brevissima, pede longiore, stelidiis e basi lata longe acuminatis pedi columnæ æqualibus flavis. *Anthera* conica apice rotundata, obtusa, alba.

Camps XII to XIII, 11,000 to 10,500 ft.

Resembling *B. gracile*, Lindl., but with much larger flowers apparently lemon-yellow, the lip purple with a yellow tip and bearded with white hairs. The lip is much longer and narrower than in *B. gracile*.

BULBOPHYLLUM CITRELLUM, Ridl., sp. nov.

Planta parva, cæspitosa, radicibus longis, pseudobulbis conicis 2 mm. longis 1 mm. crassis. *Folium* ellipticum, obtusum, basi angustatum, trinervium, coriaceum, 7 mm. longum, 3 mm. latum. *Scapus* gracilis, 3·5 cm. longus, uniflorus. *Bractea* infundibuliformis, ovario subsessili 1 mm. longo duplo brevior. *Sepalum* posticum lineare, acuminatum, 8 mm. longum, ad basin 1 mm. latum, lateralia connata, apice acuta, glabra, basi gibbosa, 8 mm. longa, 2 mm. lata. *Petala* lanceolata, triangularia, longe acuminata, marginibus pilis flavis barbata, 6 mm. longa, 0·5 mm. lata. *Labellum* lanceolatum, cymbiforme, tenue, auriculis 2 brevibus erectis oblongis ad basin rotundatis, marginibus pilis flavis barbatis. *Columna* parva, pede bis longiore, stelidiis oblongis obtusis columnam superantibus. *Anthera* parva, ovata, rotundata.

Camps XI to XII, 8300 to 11,000 ft.

Allied to *B. gracile*, Lindl., of Java, but with much smaller leaves and flowers, and with the petals and the margin of the lip hairy, and the whole lip longer. The flowers appear to have been yellow.

BULBOPHYLLUM GRAMINEUM, Ridl., sp. nov.

Rhizoma gracile, ramosum, 4 cm. longum, vaginis tenuibus lanceolatis acuminatis caducis 5 mm. longis, pseudobulbis approximatis ascendentibus cylindricis basi dilatatis 2 mm. longis. *Folia* graminea, linearia, flaccida, obtusa, 2·5 cm. longa, 1 mm. lata. *Scapus* filiformis, uniflorus, 2–2·5 cm. longus. *Pedicellus* cum ovario filiformis, 7 mm. longus, ovario paullo dilatato. *Bractea* infundibuliformis, limbo lanceolato elongato 2 mm. longo. *Sepalum* posticum lanceolatum, acuminatum, acutum, 7 mm. longum, 1 mm. latum, lateralia lanceolata, oblonga, basi connata, acuta, 9 mm. longa, 3 mm. lata, flava. *Petala* lanceolata, oblonga, acuta, 2 mm. longa, apice et costa media purpureis. *Labellum* purpureum, ungue brevi, lamina carnosa curva linguiformi, apice decurvo acuto subterete, basi alata, medio sulcata. *Columna* pede longiusculo apice libero tertiæ columnæ æquali, stelidiis erectis oblongis rotundatis. *Anthera* pileiformis, apice obtuse conica.

Camp VI *a*, 3100 ft.

Allied to *B. gracile*, Lindl., a small plant with narrow grassy leaves and apparently yellow flowers with a purple lip; the lip is winged and grooved for three-quarters of its length, and the sharp tip is decurved. The column foot, where attached to the sepals, is as long as the erect portion, and it is generally prolonged beyond the sepals.

BULBOPHYLLUM OVALE, Ridl., sp. nov.

Caules sæpe ramosi, flexuosi, 20 cm. longi, pseudobulbis appressis 8 mm. longis vaginis pallide albescentibus tectis. *Folia* ovata vel lanceolata-ovata, basi late

rotundata, brevissime petiolata, tenuiter coriacea, 3 cm. longa, 1–1·5 cm. lata, petiolo crasso 2 mm. longo. *Racemi* pauciflori, 3 mm. longi, bracteis pallidis lanceolatis acuminatis tecti. *Flores* parvi, citrini. *Ovarium* 2 mm. longum, pedicello brevi. *Bractea* peduncularis ovata, oblonga, ovarium superans. *Bractea* floralis lanceolata, tenuis. *Sepalum* posticum, ovatum, obtusum, 4 mm. longum, 1 mm. latum, lateralia ad medium connata, 4 mm. longa, ovata, crassiuscula, apice incrassata. *Petala* minuta, ovata, columnæ breviora. *Labellum* minimum, hastatum, acutum, ungue reflexo basi latiore sulcato, marginibus elevatis. *Columna* brevissima, alba; stelidia porrecta, majuscula, oblonga, truncata, apice dilatata.

Camp VI *a*, 3100 ft.

Allied to *B. oxyanthum*, Schlechter, but the leaves are shorter and more oval, and the flowers smaller, with blunt sepals unequal in size.

Bulbophyllum purpurellum, Ridl., sp. nov.

Caules plures, gracillimi, debiles, penduli, 20 cm. longi, internodiis 8 cm. longis, pseudobulbis cauli adnatis apice vix liberis. *Folia* elliptico-lanceolata vel elliptica, tenuiter coriacea, subacuta, minute mucronulata, 1–1·5 cm. longa, 4 mm. lata. *Flores* parvi, singuli in fasciculo vaginarum tenuium 5 mm. longo. *Pedicellus* cum ovario albescens, 2 mm. longus. *Sepalum* posticum lanceolatum, acutum, 2 mm. longum, lateralia latiora, basi gibbosa, mentum breve formantia. *Petala* lanceolata, acuta, sepalis duplo breviora, omnia purpurea. *Labellum* fere 1 mm. longum, purpureum, ungue longo deflexo, limbo linguiformi, lobis lateralibus erectis rotundatis e medio labello excurrentibus, apice lanceolato acuto. *Columna* purpurea, pede triplo brevior, erecta, valida, stelidiis subulatis tenuibus. *Anthera* ovata, acuta, ut margo clinandrii alba.

Camp VI *a*, 3100 ft.

A slender-stemmed plant with narrow leaves, the young parts covered with loose white sheaths 1 cm. long, which soon break up into fibres; the flowers are very small, 2 mm. long, and "purple-chocolate." The lip is rather large in proportion to the rest of the flower, and the foot of the column is long.

Bulbophyllum perexiguum, Ridl., sp. nov.

Caulis gracilis, 8 cm. longus, radicibus tenuibus pseudobulbis adnatis, apicibus minutis solis liberis 1·5 cm. longis vel brevioribus. *Folium* tenue, lanceolatum, acutum, 2·5 cm. longum, 4 mm. latum, ad basin paullo angustatum, apice minute cuspidatum. *Racemus* 3 mm. longus, bracteis lanceolatis acutis tectus. *Ovarium* pedicello incluso brevissimum. *Bractea* lanceolata, acuta, ovario longior, 1 mm. longa. *Flores* parvi, flavi, rubro-punctati. *Sepalum* posticum lanceolatum, acutum, lateralia duplo longiora, 3·5 mm. longa, plana, ad $\frac{1}{3}$ connata, lineari-lanceolata, obtusa. *Petala* minima, ovata, triangularia, acuta, quam columna breviora. *Labellum* lanceolatum, utrinque acuminatum, subacutum, planum, basi flavum, apice purpureum. *Columna* brevis, pede brevior, alba, stelidiis linearibus obtusis erectis antheram magnam conicam superantibus.

Camp III, 2500 ft.

A very insignificant little plant, with very small flowers, the sepals of which are very unequal.

BULBOPHYLLUM SARCANTHIFORME, Ridl., sp. nov.

Caules flexuosi, cæspitosi, tenues, penduli, sæpe ramosi, 10–11 cm. longi, pseudobulbis appressis ad caules adnatis, apicibus brevissimis 1 mm. longis liberis. *Folia* linearia, basi angustata, epetiolata, apice mucronulata, 2 cm. longa, 2 mm. lata. *Flores* parvi, flavi, solitarii, bracteis 3–4 lanceolatis pallidis 1 mm. longis suffulti. *Pedicellus* cum ovario gracili 2 mm. longus. *Sepalum* posticum lanceolatum, acuminatum, 3 mm. longum, lateralia late lanceolata, acuminata, paullo longiora et latiora, 1·5 mm. lata. *Petala* lanceolata, obtusa, breviora, nervis 3 purpureis, medio puncto purpureo terminato. *Labellum* kermesinum, 20–25 mm. longum, angustum, rectum, carnosum, lanceolatum, obtusum, pilis clavatis tectum, ungue brevi, lobis erectis ad mediam laminam currentibus. *Columna* validula, pede æquilongo, stelidiis erectis subulatis antheram multo superantibus. *Anthera* conica, obtusa, alta.

Camp III, 2500 ft., and Camp VI *a*, 3100 ft.

A slender pendulous plant, recalling one of the small-flowered Saccolabiums in appearance, with very small dull yellow flowers and a crimson straight lip covered with knobbed hairs. The sheaths of the stems break up into long persistent fibrils as the plant grows.

BULBOPHYLLUM ERECTUM, Ridl., sp. nov.

Caules erecti, 20–40 cm. longi, graciles, 2 mm. crassi, radicibus ad basin congestis, pseudobulbis minutis ramiformibus 1 mm. longis. *Folia* 2–2·5 cm. remota, lanceolata vel elliptico-lanceolata, basi breviter angustata, apice subacuta, mucronulata, coriacea. *Racemi* foliis oppositi, 5 mm. longi, bracteis lanceolatis papyraceis acutis pluribus. *Ovarium* cum pedicello 8 mm. longum. *Sepala* lanceolata, acuminata, caudata, 9 mm. longa, 2 mm. lata. *Petala* lanceolata, linearia, acuminata, obtusa, columnam superantia, 3 mm. longa. *Labellum* lanceolatum, acuminatum, obtusum, 5 mm. longum, fere ad basin latum, porrectum, carnosum, ungue brevissimo deflexo, lobis lateralibus paullo elevatis brevibus rotundatis, costa media lata versus apicem decrescente. *Columna* majuscula, crassa, oblonga, pede breviore, stelidiis erectis subulatis antheram superantibus. *Anthera* parva, complanata, ovata, rostro sursum curvo brevi.

Camp VI *a*, 3100 ft.

A tall, slender, weak plant of doubtful affinity, with flexuous stems covered with tubular mucronate sheaths 8 mm. long.

BULBOPHYLLUM OXYSEPALOIDES, Ridl., sp. nov.

Rhizoma gracillimum, vaginis brevibus 4 mm. longis costatis arcte appressis tectum, pseudobulbis minutis vix 2 mm. longis cylindricis vaginis tectis. *Folium* sessile,

lanceolatum, acutum, coriaceum, 1 cm. longum, 3 mm. latum. *Flores* minimi, singuli, sessiles, ovariis brevissimis. *Bractea* lanceolato-linearis, longe acuminata, ovarium superans, 2 mm. longa, apice rufescens. *Sepalum* posticum lanceolatum, a medio in apicem filiformem æquilongum productum, 3 mm. longum, lateralia ad basin connata, gibba, similia, flava. *Petala* minuta, lanceolata, obtusa, columnam æquantia. *Labellum* aurantiacum, 1 mm. longum, ungue deflexo, limbo cylindrico obtuso angusto. *Columna* brevis, alba, stelidiis rotundatis brevissimis vix distinguendis. *Ovarium* brevissimum, sessile.

Camp I, 700 ft.

Allied to *B. stipulaceum*, Schlecht., but with much smaller bracts.

BULBOPHYLLUM CERATOSTYLOIDES, Ridl., sp. nov.

Rhizoma ascendens, curvum, sæpe ramosum, 7 cm. longum, vaginis lanceolatis acuminatis pallidis tectum, pseudobulbis conicis curvis 5 mm. longis 2 mm. crassis approximatis. *Folia* linearia, 4 cm. longa, 2 mm. lata, ad basin angustata, apice mucronulata, sicca nigra. *Flores* rosei, solitarii in pedicellis 5 mm. longis, bracteis celatis. *Sepalum* posticum lanceolatum, acuminatum, angustatum, 3 mm. longum, lateralia similia, ad basin paullisper gibbosa. *Petala* erecta, rotundata, truncata, late oblonga, columnam vix superantia. *Labellum* sepalis paullo brevius, linguiforme, lanceolatum, basi sulcatum, marginibus elevatis, apice terete carnoso. *Columna* brevis, stelidiis filiformibus longioribus. *Capsula* ellipsoidea, ad perianthium coronans dehiscens, 5 mm. longa.

Camp VI *a*, 3100 ft.

The pseudobulbs and leaves dry black. The rhizome roots only at the base, and is curved, probably pendulous from a branch, resembling that of a *Ceratostylis* of the *C. lancifolia* type, especially as the rhizome is covered with reddish silvery sheaths as in such plants.

BULBOPHYLLUM ARCANIFLORUM, Ridl., sp. nov.

Pseudobulbi approximati, conici, 1·5 cm. longi, 4 mm. crassi, radicibus longis gracilibus. *Folium* oblongum, lanceolatum, tenuiter coriaceum, ad basin angustatum, ad apicem breviter attenuatum, carina vix distincta. *Racemi* 5 mm. alti, plures ad basin pseudobulbi congesti, sessiles. *Bracteæ* plures, lanceolatæ, cuspidatæ, 2 mm. longæ. *Ovarium* cum pedicello 5 mm. longum. *Sepala* lanceolata, acuta, cuspidata, subæqualia, flavescentia, 6 mm. longa, 2 mm. lata, posticum paullo angustius. *Petala* minuta, ovata, cuspidata, columna breviora. *Labellum* carnosum, linguiforme, obtusum, crassum, purpureum, apice flavum, marginibus semiovoideis ad basin elevatis, costa in medio elevata. *Columna* elongata, curva, basi dilatata, superne angustata, marginibus clinandrii et stelidiis brevibus oblongis dentatis. *Anthera* majuscula, oblongo-elliptica.

Camp I, 700 ft., and Camp VI *a*, 3100 ft.

A curious little plant with minute flowers, which seem to appear but one at a time, and to be of a yellowish colour except the lip, which seems to have been purple or brownish with a yellow tip.

Bulbophyllum virescens, J. J. Sm. in Bull. Inst. Buitenz. vol. vii. (1900) 3.
Camp VI *a*, 3100 ft.
Distrib. Endemic in New Guinea.

Bulbophyllum dubium, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. xxii. (1909) 36.
Utakwa Valley, without exact locality.
Distrib. Endemic in New Guinea.

Bulbophyllum alticaule, Ridl., sp. nov.

Pseudobulbi cauliformes, graciles, subtriquetri, 7-costati, 15 cm. longi, 2 mm. crassi, in rhizomate 3 mm. crasso remoti. *Folium* ellipticum, acutum, ad basin angustatum, coriaceum, carina prominula, 15 cm. longa, 4 cm. lata, petiolo sulcato 2 cm. longo. *Scapus* 18 cm. altus, pedunculo 12 cm. longo, vaginis 4–5 tubulosis acuminatis 1 cm. longis dissitis, racemo denso 6 cm. longo multifloro. *Bracteæ* 5 mm. longæ, lanceolatæ, acuminatæ, minute punctatæ. *Pedicelli* 8 mm. longi. *Sepala* oblongo-ovata, lateralia basi connata, falcata, obtusa, apice extus papillosa, minute mucronata, 5-nervia, 6 mm. longa, 5 mm. lata. *Petala* lanceolata, 5 mm. longa. *Labellum* carnosum, latum, curvum, obtusum, basi latius, apice linguiforme, 5 mm. longum, 3 mm. latum, costa media elevata. *Columna* oblonga, erecta, ventre alata alis tenuibus, stelidiis minutis acutis terminatis, pede æquilongo. *Anthera* ovata, tenuis, apice acuta.

Camp VI *a*, 500 ft.

The flowers are apparently pink with darker tips to the sepals; the dense-flowered racemes stand stiffly erect close to the narrow stem-like pseudobulbs.

Bulbophyllum pardalinum, Ridl., sp. nov.

Rhizoma 2 mm. crassum, pseudobulbis cauliformibus basi incrassatis 2 cm. longis fibrillis vaginæ tectis. *Folium* lanceolatum, apice breviter acuminatum, obtusum, ad basin attenuatum, coriaceum, carinatum, 12 cm. longum, 1·7 cm. latum, petiolo 2 cm. longo. *Scapus* 20 cm. longus, erectus, validulus, floribus mediocribus 3–4 secundis, inferne vaginis cylindricis acuminatis 6 mm. longis. *Bracteæ* tubulosæ, apice lanceolatæ, acutæ, cuspidatæ, 5 mm. longæ. *Pedicellus* cum ovario 7 mm. longus. *Sepala* lanceolata, acuminata, subæqualia, posticum paullisper angustius, 1·9 cm. longa, 2 mm. lata, basi dense rubro-punctata, apice flava. *Petala* lanceolata, triangularia, acuminata, columnæ æquilonga. *Labellum* 1·5 cm. longum, ad basin 2 mm. latum, ungue deflexo brevi flavo, lobis 2 rotundatis erectis, lamina cylindrica profunde sulcata, marginibus sulci eversis, purpurea, trichomatibus planis linearibus furcatis dense tecta. *Columna* majuscula, 4 mm. longa, basi angusta, pede brevi, marginibus superne alatis, stelidiis brevibus lanceolatis obtusis. *Anthera* magna, erecta, oblonga, apice rotundato.

Camps VI *a* and VI *b*, 3100 and 3900 ft.

In some respects this species suggests an affinity with *B. callipes*, J. J. Sm. and its allies, but the racemose inflorescence and deflexed, not straight, claw of the lip separate it.

Bulbophyllum erraβundum, Ridl., sp. nov.

Rhizoma elongatum, 1 mm. crassum nudum, pseudobulbis 3 cm. remotis ovoideo-conicis 3 mm. longis. *Folium* lineare, acutum, coriaceum, 5 cm. longum, 2 mm. latum. *Scapi* gracillimi, ad 20 cm. longi, basi (ad 1·5 cm.) nudi, floribus remotis 7–14, pedicellis filiformibus 1·1 cm. longis, ad 1 mm. supra basin articulatis. *Bractea* minuta, vix 1 mm. longa, linearis. *Sepala* oblonga, obtusa, apice rotundata, subæqualia, tenuiter trinervia, 4 mm. longa, 2 mm. lata, patentia. *Petala* obovata, truncata, apice lata, emarginata, dente minuto intermedio, quam sepala subduplo breviora. *Labellum* oblongum, obtusum, carnosum, 15 mm. longum, marginibus hirtis. *Columna* brevis, lata, stigmatis fovea longa elliptica, stelidiis minimis subacutis, pede longiore. *Anthera* ovata, pileata. *Capsula* oblonga, obtusa, fere sessilis, costis vix elevatis.

Camps VI *a* and VI *b*, 3100 to 3900 ft.

Closely allied to an undescribed species collected by Micholitz on the Mount Stirling Range, which differs in having acute sepals and very much larger bracts, and to *B. graciliscapa*, Schlechter.

Bulbophyllum baculiferum, Ridl., sp. nov.

Rhizoma elongatum, gracile, vaginis pallidis apice costatis ovatis 2–4 mm. longis tectum, pseudobulbis minutis cylindricis 2 mm. longis 1 mm. crassis congestis vel remotis. *Folium* coriaceum, lanceolatum, mucronulatum, ad basin angustatum, 1·5–3·5 cm. longum, 4–7 mm. latum. *Scapus* gracilis, 15 cm. longus, per 10 cm. nudus, vagina una parva excepta, racemo 3 cm. longo flexuoso, floribus circiter 10 remotis, rhachi parce verruculosa. *Bracteæ* lanceolatæ, obtusæ, convolutæ, 2 mm. longæ, juveniles lanceolatæ, acutæ, patentes. *Pedicelli* graciles, cum ovariis 6 mm. longi. *Sepalum* posticum lanceolatum, obtusum, trinervium, 4 mm. longum, 1 mm. latum, appendice terete obtuso atro in apice e nervo medio oriente, lateralia fere ad apices connata, apice obtusa, appendicibus eo sepali postici similibus. *Petala* brevia, lata, oblonga, truncata, columna breviora. *Labellum* parvum, ungue brevi descendente crasso, lamina ovata lanceolata plana, lobis 2 tenuibus rotundatis. *Columna* brevis, crassa, pede subæqualis, stelidiis porrectis brevibus oblongis obtusis. *Anthera* ovata, acuta.

Camp VI *a*, 3100 ft.

Bulbophyllum Orsidice, Ridl., sp. nov.

Rhizoma longe repens, pseudobulbis 2–4 cm. distantibus cylindricis erectis basi incrassatis 3 cm. longis. *Folium* lanceolatum, acuminatum, acutum, subfalcatum, basi angustatum, dorso carinatum, 5–12 cm. longum, 2 cm. latum, petiolo canaliculato 4–5 cm. longo. *Scapus* gracilis, 35 cm. longus vel longior, racemo evoluto 6 cm. longo. *Bracteæ* ad 17 amplectentes, cupuliformes, 7 mm. longæ, 3 mm. latæ, dente longo. *Pedicellus* cum ovario gracili, 1·5 cm. longus. *Sepalum* posticum lineare, acuminatum, 5-nervium, 2 cm. longum, ad basin 1 mm. latum, lateralia longiora, 2·5 cm. longa, ad basin connata, flava, nervis obscurioribus. *Petala* triangularia, cuspidata,

1 mm. longa, carina et cuspide purpureis. *Labellum* lineare, acuminatum, basi cordatum, 2·5 cm. longum, 2 mm. latum, lobis in utroque latere 2 acuminatis et cuspidatis complanatis, carina et cuspide atris, inter eus lobis 2 rotundatis erectis, sulco intermedio, costa mediana in lamina elevata. *Columna* 0·65 mm. longa, pede canaliculato, stigmatis fovea magna oblonga, stelidiis ovatis subacutis margine clinandrii adjunctis. *Anthera* magna, oblonga, pileata.

Camp VI, 3100 ft., and Camp VI *c*, 3200 ft.

Allied to and closely resembling in habit *B. thrixspermiflorum*, J. J. Sm., but differing in the much longer, quite differently-shaped lip, the acute cuspidate petals, and the remarkably long column, the longest I have seen in any species of the genus.

PEDILOCHILUS PAPUANA, J. J. Sm. in Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 219, t. 11.

Camps VI *b* and VI *c*, 3900 and 5500 ft.

Distrib. Endemic in New Guinea.

PEDILOCHILUS MONTANA, Ridl., sp. nov.

Rhizoma crassiusculum, lignosum, squamis ovatis mucronulatis 1 cm. longis, ·7 mm. latis tectum, pseudobulbis subcylindricis basi incrassatis congestis 1 cm. longis. *Folium* coriaceum, lanceolatum, basi angustatum, apice acutum, integrum, 4·5 cm. longum, 9 mm. latum. *Scapi* 5–7 cm. longi, graciles, basi vagina tubulosa apice lanceolata acuta 1 cm. longa cincti. *Bractea* tubulosa, cupuliformis, ore obliquo, ad basin angustata, 5 mm. longa. *Sepalum* posticum lanceolatum, acuminatum, ad marginem ciliolatum, 1 cm. longum, 3 mm. latum, lateralia ovato-lanceolata, acuta, 1·5 cm. longa, 5 mm. lata. *Petala* ovata, 4 mm. longa, marginibus tenuibus, carina obscura carnosa in aristam producta. *Labellum* 1 cm. longum, oblongum, calceolatum, basi processubus corniformibus 2 parvis, callo intermedio parvo, apice lanceolato carnoso obtuso 3 mm. longo. *Columna* parva, stelidiis longis filiformibus. *Anthera* apice conica, obtusa, ei *P. papuanæ* similis.

Camps XIII to XIV, 10,500 to 12,500 ft.

This species differs from *P. papuana* in the thicker, shorter coriaceous leaves, the acute sepals, and the longer, more oblong lip; from *P. ciliolata*, Schlechter, in its much larger pseudobulbs and leaves, and its much broader lateral sepals, which are nearly twice as wide as the dorsal one and not ciliolate.

PEDILOCHILUS PUMILIO, Ridl., sp. nov.

Planta humilis, pseudobulbis in rhizomate brevi congestis conico-cylindricis curvis 3 mm. longis. *Folium* coriaceum, lanceolatum, acutum, ad basin angustatum, 2 cm. longum, 6 mm. latum, petiolo brevissimo. *Scapus* filiformis, 4–5 cm. longus. *Bractea* infunduliformis, fere 1 mm. longa. *Pedicelli* cum ovario 2 mm. longi. *Flos* parvus, ut videtur, roseus vel purpureus. *Sepalum* posticum lanceolatum acutum, in margine hirtum, purpureum, 7 mm. longum, 2 mm. latum, lateralia oblique ovata, acuta, in margine hirta, 7 mm. longa, 4 mm. lata. *Petala*

ovata, acuta, 4 mm. longa. *Labellum* oblongum, cymbiforme, sepalis subæquilongum, lobis basalibus nullis, lobo terminali carnoso lanceolato obtuso brevi ut videtur flavo. *Columna* parva, subelongata, stelidiis lanceolatis curvis.

Camp VI *a*, 3100 ft.

A very small species, with an oblong boat-shaped lip nearly as long as the sepals.

Eria Wollastonii, Ridl., sp. nov.

Pseudobulbi plures, subcylindrici, crassi, 13·5 cm. longi, 10 cm. in circuitu. *Folia* 3, oblanceolata, 20 cm. longa, 4–5 cm. lata. *Racemus* infra folia ortus, 23 cm. longus, pubescens, pallide albescente-viridis, multiflorus. *Bracteæ* triangulares, lanceolatæ, deflexæ, 3 cm. longæ. *Pedicelli* pubescentes, lanuginosi, 1·5 cm. longi. *Sepalum* posticum ellipticum, obtusum, 4 mm. longum, lateralia obtuse triangularia, apice rotundata, mento brevi lato, 6 mm. longa, pallide flavescentia, lanuginosa. *Petala* breviora, oblonga, rotundata, glabra, versus basin roseo-tincta. *Labellum* brevius, ungue brevi lato oblongo crasso albo, limbo æquilongo deflexo flavo oblongo truncato, lobis lateralibus carnosis rotundatis, callo nullo. *Columna* cylindrica, crassa, alba. *Anthera* lata, complanata, 8-locularis, apice atro-kermesina.

A living plant was brought home by Mr. Wollaston, and flowered by the Honourable Charles Rothschild. Precise locality not known.

Allied to *E. Hollandiæ*, J. J. Sm., but with a smooth shorter lip, and a perfectly flat anther.

Eria stellata, Lindl. Bot. Reg. t. 904.

Launch Camp, at sea-level.

Distrib. Malay Peninsula and Islands.

Eria papuana, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. xix. (1908) 23, et in Nova Guinea, viii. 89, t. 21. 94.

Camp III, 2500 ft., and Camps VI *a* to VI *c*, 3100 to 5500 ft.

Distrib. Endemic in New Guinea. Apparently common.

Poæphyllum fuscum, Ridl., sp. nov.

Caules ramosi, bambusiformes. *Folia* rigida, linearia, coriacea, apice inæqualiter biloba, 4 cm. longa, 3 mm. lata, subtus carinata, superne sulcata, sicca atra, vaginis teretibus ore integro 1 cm. longis. *Flores* solitarii, axillares, purpurei (sicci atri), pedicellis 6 mm. longis. *Bracteæ* lanceolatæ, mucronulatæ, 3 mm. longæ, pallidæ. *Sepalum* posticum lanceolatum, obtusum, 3 mm. longum, 1 mm. latum, lateralia similia, 2 mm. lata, mento clavato globoso 2 mm. longo. *Petala* linearia, obtusa, æquilonga, 3 mm. longa, 1 mm. lata, purpurea. *Labellum* brevius, tenue, trilobum, ungue lineari longiusculo, lobis rotundatis obtusis, medio longiore rotundo, nervis 2 elevatis basi connatis dein in disco inter lobos laterales divaricatis undulatis. *Columna* alta, pede æquilongo, clinandrii marginibus paullo elevatis. *Anthera* parva, bilocularis, ovata, rotundata, filamento longiusculo.

Camps VI *b*, 3900 ft., and VI *c*, 5500 ft.

A very distinct species of this small genus with its rigid coriaceous leaves, and stiff terete, sometimes branched stems, three-lobed lip, and distinct rounded spur-like mentum. The whole plant dries black; the flowers appear to have been deep purple except the lip, which looks whitish. The genus *Poæphyllum* was formed by myself to include a plant described by Sir J. D. Hooker as *Agrostophyllum pauciflorum*, and transferred at first by me to *Eria*. It was published in 'Materials for a Flora of the Malay Peninsula,' Monocot. vol. i., in the early part of the year 1907. By some error, the printer in printing a general title-page to the whole three volumes put the date 1908 (the date of the printing of the index) instead of 1907. The same year, but apparently a month or two later, J. J. Smith published another species of the same genus under the name *Lectandra parviflora*, n. gen. & sp., in the 'Bulletin du Département de l'Agriculture aux Indes Néerlandaises,' xiii. (1907) p. 59. The genus *Poæphyllum* I believe, therefore, ante-dates *Lectandra*. The species known are *P. pauciflorum*, Ridl. (Malay Peninsula), *P. parviflorum* (*Lectandra parviflora*, J. J. Sm.) (Java), *P. podochiloides* (*Trichotosia podochiloides*, Schlechter) (New Guinea), and the species described here for the first time.

Poæphyllum podochiloides, Ridl. *Trichotosia podochiloides*, Schlechter, in K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 182.

Camps III, 2500 ft., and VI *a*, 3100 ft.

" Hood creamy, petals transparent pale green, lip crimson."

Distrib. Endemic in New Guinea.

Ceratostylis clavata, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. xix. (1908) 11.

Camp XIII, 10,500 ft.

Distrib. Endemic in New Guinea.

Ceratostylis tenericaulis, Ridl., sp. nov.

Caules cæspitosi, gracillimi, basi angusti, vaginis pallidis ad 1 cm. tecti, 7–14 cm. longi. *Folium* subterminale, lineare, acuminatum, carnosum, superne sulcatum, dorso convexo 2·2 ad 1·5 cm. longum, 1 mm. latum. *Capitulum* 5 mm. longum, bracteis pluribus lanceolatis acutis pallidis glumaceis 1 mm. longis. *Sepalum* posticum lanceolatum, acutum, dorso sericeum, 1 mm. longum, lateralia oblongo-lanceolata, acuta, sericea, mento cylindrico-clavato 5 mm. longo sericeo. *Petala* lanceolata, obtusa, breviora. *Labellum* lanceolatum, obtusum, lateribus basi tenuibus elevatis, apice terete obtuso carnoso obscuro, linea mediana in disco elevata. *Columna* stelidiis magnis oblongis apicibus rotundatis truncatis dimidio labelli æqualibus. *Anthera* minima, ovata, rotundata, minute cristata.

Camp VI *a*, 3100 ft., and Camp VI *c*, 5500 ft.

Allied to *C. clavata*, J. J. Sm., but much more slender.

Ceratostylis Armeria, Ridl., sp. nov.

Cæspitosus, caulibus teretibus 15 cm. longis basi vaginis ampliatis tectis, radicibus copiosis tenuibus. *Folium* erectum, subterminale, angustum, teres, sulcatum, 2–5 cm. longum, 1 mm. crassum. *Capitulum* subgloboso-oblongum, 4 mm. longum. *Bracteæ* ovatæ, acutæ, glumaceæ, pallidæ, costatæ. *Flores* rosei, 5 mm. longi.

Ovarium breve crassum, obconicum, sericeum. *Sepala* ad dimidium connata, ovata, acuta, æqualia, mento sericeo subgloboso scrotiformi horizontali. *Petala* linearia, angustissima, latitudine ⅓ sepali æquantia, obtusa. *Labellum* quam sepala brevius, oblongum, lateribus elevatis tenuibus, apice obtuso linguifromi carnoso, costa mediana incrassata. *Columna* brevis, stelidiis brevibus erectis oblongis obtusis truncatis vix longioribus apicibus obscuris. *Anthera* flava, ovata, complanata.

Canoe Camp, 150 ft.

Allied to *C. teres*, Reichb. fil., but the sepals are connate for half their length.

Ceratostylis glabra, Ridl., sp. nov.

Caules teretes, 16–20 cm. longi, basi ad 5 cm. vaginis lanceolatis 1–3 cm. longis tecti. *Folium* coriaceum, lineari-lanceolatum, subacutum, 13–14 cm. longum, 4–5 mm. latum. *Capitulum* oblongum, 7–8 mm. longum, bracteis pluribus lanceolatis acuminatis costatis. *Flores* glabri. *Sepala* libera, posticum lineari-oblongum, 3 mm. longum, lateralia late lanceolata, acuta vel subacuta, latiora, mento elongato saccato crasso obtuso 3 mm. longo. *Petala* linearia, angusta, acuminata, fere æquilonga. *Labellum* oblongum, sepalis brevius, marginibus elevatis tenuibus apice linguiformi carnoso. *Columna* brevis, stelidiis tenuibus porrectis magnis oblongis oblique truncatis rigidis obscuris. *Anthera* ovata, orbicularis, crista obscura.

Camps VI *a*, 3100 ft., VI *c*, 5500 ft.

Allied to *C. pugioniformis*, J. J. Sm., but a bigger plant with larger, glabrous flowers.

Ceratostylis breviceps, Ridl., sp. nov.

Planta cæspitosa. *Caules* 15 cm. longi, 2 mm. crassi (in sicco). *Folium* rigidum, coriaceum, lineari-lanceolatum, ad basin et apicem angustatum, 9 cm. longum, 5 mm. latum. *Capitulum* parvum, 4 mm. longum, bracteis ovatis acutis pallidis 1 mm. longis. *Sepalum* posticum lanceolatum, obtusum, sericeum, 2 mm. longum, lateralia subsimilia, libera, mento cylindrico apice dilatato globoso sericeo 3 mm. longo. *Ovarium* sericeum, cylindricum, æquilongum. *Petala* angusta, lanceolata, acuta, sepalis fere æquilonga, multo angustiora. *Labellum* oblongum, basi saccatum, marginibus elevatis, apice carnoso linguiformi obtuso, sepalis multo brevius. *Columna* brevis, stelidiis breviusculis lanceolatis apicibus rotundatis pallidis.

Camp VI *c*, 5500 ft., and again at Camp XIII, 10,500 ft.

This has the habit, stem, and leaf of *C. glabra*, but is smaller, the bracts of the capitulum are thin and glumaceous as in *C. tenericaulis*, Ridl., and the flowers are silky.

Phreatia Lorentzii, Kränzl. in Pflanzenr. iv. 50. 11. *Octarrhena Lorentzii*, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. xxxix. (1910) 18, and Nova Guinea, Supp. 597.

Camp VI *a*, 3100 ft., and Camp XIII, 10,500 ft.

Distrib. Endemic in New Guinea.

Smith describes the curious zigzag flattened rhachis as 2–4 cm. long and 24 mm. wide. In Kloss's specimens the inflorescence is developed to 11 cm. long and 3 mm. wide.

This species, which was placed by Kränzlin in the neighbourhood of *Ph. nana*, Hook., is very unlike that and all other species in the genus, and should, I think, be separated generically. It has, however, no particular affinity with the type of the genus *Octarrhena*.

PHREATIA ANGRÆCOIDES, Schlechter, in K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 185.

Utakwa Valley, without special locality.

Distrib. Endemic in New Guinea.

Also now referred by Schlechter to *Octarrhena*.

PHREATIA (§ CAULESCENTES) VITELLINA, Ridl., sp. nov.

Caules 5–20 cm. longi, cataphyllis vaginantibus tecti. *Folia* carnosa, linearia, obtusa, 3 cm. longa, 1 mm. lata, curva, vaginis subcompressis 0·5–1 cm. longis, cicatricibus laminæ ellipticis. *Racemi* axillares, 2–2·5 cm. longi, basi nudi, floribus vitellinis quaquaversis, bracteis caulinis lanceolatis acuminatis cuspidatis, cuspide 1 mm. longo. *Bracteæ* florales lanceolatæ, acuminatæ, ovariis pedicellis additis fere iis æquilongæ. *Ovarium* cum pedicello 5 mm. longum. *Sepalum* posticum lanceolatum, acutum, angustum, lateralia multo latiora, ovata, mento nullo. *Petala* lanceolata, obtusa, sepalo postico multo angustiora. *Labellum* haud unguiculatum, angustum, lineare, obtusum, apice sursum curvo, marginibus elevatis, stelidiis distinctis truncatis.

Camp III, 2500 ft., and Camp VI *c*, 5500 ft.

"Flowers yolk-of-egg colour."

Allied to *Ph. nana*, Hook. fil., of the Malay Peninsula, but with much larger sheaths to the leaves, narrow lip, and differently coloured flowers.

PHREATIA PROCERA, Ridl., sp. nov.

Planta caulescens, caule 50–60 cm. longo, basi vaginis albescentibus exceptis nudo. *Folia* linearia, graminea, falcata, carinata, versus apicem attenuata, 7 cm. longa, 4 cm. lata, vaginis fissis in margine scariosis albis 2·5 cm. longis tenuibus. *Racemi* laterales, 10 cm. longi, fere ad basin laxiflori. *Bracteæ* ovariis æquilongæ, acuminatæ, 1 mm. longæ. *Ovaria* cylindrica, lævia. *Sepala* ovata, acuminata. *Petala* minora, lanceolata, acuminata. *Labellum* late ovatum, haud unguiculatum, apiculo brevi. *Mentum* brevissimum, rotundatum.

Camps III, 2500 ft., and VI *a*, VI *b*, VI *c*, 3100 to 5500 ft.

Allied to *Ph. longicaulis*, J. J. Sm.

PHREATIA (§ CAULESCENTES) MONTANA, Ridl., sp. nov.

Caules graciles, 8 cm. longi, radicibus gracilibus copiosis. *Folia* linearia, obtusa, curva, carnosa, complanata, minute retusa, cum mucronulo parvo 3 cm. longa, 15 mm. lata, vaginis 5 mm. longis pallidis costatis marginibus crispis scariosis. *Racemi* erecti, 11 cm. longi, graciles, laxiflori, basi ad 5 cm. nudi vaginis paucis exceptis. *Bracteæ* lanceolatæ, acuminatæ, 1 mm. longæ, ovaria æquantes. *Sepala*

ovata, obtusa. *Mentum* nullum. *Labellum* haud unguiculatum, obovatum, obtusum, rotundatum, medio depressum, saccatum, marginibus elevatis, nervis in medio rubris. *Columna* minima. *Anthera* ovata, rotundata.

Camps XI to XII and XIII, 8300 to 10,500 ft.

This species somewhat resembles *Ph. Lorentzii* in the form of stem and leaves, but the flowers are very much smaller. The lip is boat-shaped, the sides elevated, and the centre depressed.

PHREATIA (§ EUPHREATIA) KLOSSII, Ridl., sp. nov.

Caules breves, multifoliati, 2 cm. longi. *Folia* linearia, acuta, coriacea, 10 cm. longa, 2 cm. lata, vaginis oblongis ad basin fissis costatis ad margines crispis 7 mm. longis. *Racemi* axillares, erecti, graciles, 12 mm. longi, basi ad 4 cm. nudi vaginis longe acuminatis exceptis. *Flores* dense congesti, minimi. *Bracteæ* lanceolatæ, acuminatæ, flores æquantes vel longiores, 15 mm. longæ, lanceolatæ vel ovato-lanceolatæ, acuminatæ. *Sepalum* posticum ovatum, obtusum, lateralia ovata, obtusa, latiora, mento pro flore longiusculo horizontali. *Petala* multo minora, ovata. *Labellum* trulliforme, ungue latiusculo, lamina latiore ovata obtusa. *Anthera* breviter rostrata, rotundato-oblonga. *Capsula* cylindrica, sessilis vel subsessilis, oblonga, fere 3 mm. longa.

Camp III, 2500 ft., and at Camps VI *a* to VI *b*, 3100 to 3900 ft.

Near *Ph. linearifolia*, Schlechter, but smaller, with narrower stiffer leaves, and nearly sessile flowers.

PHREATIA LINEARIFOLIA, Schlechter, in K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, Nachtr. 188.

Camps III, 2500 ft., and VI *a*, 3100 ft..

Distrib. Endemic in New Guinea.

PHREATIA (§ EUPHREATIA) FALCATA, Ridl., sp. nov.

Planta parvula, caule brevissimo 1 cm. longo. *Folia* circiter 5, disticha, oblanceolata, falcata, coriacea, ex apice versus basin angustata, 2·5 cm. longa, 5 mm. lata. *Racemus* axillaris, gracilis, 5 cm. longus, basi vaginis tubulosis tectus, parte florifera 3 cm. longa laxa multiflora. *Bracteæ* breves, lanceolatæ, ovatæ, cuspidatæ. *Flores* parvi, albi, 1 mm. longi. *Sepalum* posticum ovatum, obtusum, lateralia multo majora, ovata, rotundata, mento brevi. *Petala* minora, lanceolata, obtusa. *Labellum* basi latum, saccatum, lamina ovata hastata triangulari latiore obtuso. *Columna* brevis, lata. *Anthera* ovata, rotundata.

Camps I, 700 ft., and III, 2500 ft.

A very distinct little plant in its distichous flattened falcate leaves. The inflorescence when very young is cone-shaped lengthening out into the slender lax raceme.

PHREATIA (§ EUPHREATIA) MODESTA, Ridl., sp. nov.

Caulis brevis, 5 mm. longus. *Folia* 3, linearia, obtusa, coriacea, 3·5 cm. longa, 3 mm. lata. *Scapus* brevior, gracilis, basi vaginis 3 laxis ovatis vel late lanceolatis cuspidatis involutis tectus. *Flores* quaquaversi, minimi, albi, dissiti, pedicellis cum

ovario 1 mm. longis. *Bracteæ* lanceolatæ, longe acuminatæ, inferiores flores superantes, superiores pedicellum cum ovario æquantes. *Sepalum* posticum oblongum, obtusum, lateralia latiora, ovata. *Petala* breviora et angustiora, ovata, obtusa. *Labellum* unguiculatum, ungue lineari canaliculato saccato, lamina flabelliformi.

Camp III, 2500 ft.

Allied to *Ph. brachystachys*, Schlechter, but the latter has a cuneate-rhomboid lip.

PHREATIA (§ EUPHREATIA) FLACCIDA, Ridl., sp. nov.

Caulis brevis. *Folia* linearia, falcata, obtusa, tenuia, apice inæqualiter biloba, 3–7 cm. longa, 2–5 mm. lata. *Racemus* gracilis, folia superans, basi ad 10 cm. nudus, bracteis caulinis lanceolatis acuminatis, parte florifera ad 6 cm. longa laxiflora. *Bracteæ* florales breves, ovatæ, cuspidatæ, cucullatæ, quam pedicelli breviores, 15 mm. longæ. *Ovarium* subcylindricum. *Sepalum* posticum ovatum, oblongum, lateralia ovata, subacuta, majora. *Petala* subspathulata, ovata, acuta, basi angustata, multo minora. *Labellum* ungue lineari, lamina reniformi latiore, apicibus acutis. *Anthera* ovata, parva.

Camp I, 500 ft.

Flowers apparently brown, anther white.

Allied to *Ph. falcata*, with longer leaves and a very different lip.

PHREATIA (§ EUPHREATIA) DENSISPICA, Ridl., sp. nov.

Caulis circiter 2 cm. longus, crassus, radicibus copiosis albis densis. *Folia* lanceolata, acuminata, coriacea, obtusa, 4–5·5 cm. longa, 5 mm. lata, vaginis 2–3 mm. longis costatis. *Racemi* axillares, 4 cm. longi, densiflori, basi nuda 1 cm. longa, bracteis laxis magnis acutis (ima 1 cm. longa) tecti. *Bracteæ* florales floribus æquales vel longiores. *Flores* minuti, pedicellis cum ovario ovoideo 1 mm. longis. *Sepalum* posticum ovatum, lateralia latiora, ovata, mento brevi rotundato obtuso. *Petala* lanceolata, obtusa, minora. *Labellum* unguiculatum, ungue lineari canaliculato, limbo ovato rotundato parvo. *Columna* pede distincto. *Anthera* ovata, rotundata.

Camp III, 2500 ft.

There seem to be two forms, one very densely flowered with a short stem, the other with a stem as much as 4 cm. long and 7 mm. thick, and a laxer spike.

PHREATIA (§ THELASIFORMES) PLATYCLINOIDES, Ridl., sp. nov.

Rhizoma gracile, pseudobulbis approximatis cylindricis vaginis pallidis acuminatis ad margine crispis tectis 2 cm. longis 3–4 mm. crassis (in sicco). *Folia* bina, linearia, ad apices attenuata, obtusa, 5 cm. longa, 2 mm. lata. *Racemi* laterales, 9–16 cm. longi, dimidio inferiore nudo, superne multiflori, vaginis 4 remotis acuminatis ad acuminem carinatis 1 cm. longis vel minoribus. *Bracteæ* lanceolatæ, acuminatæ, inferiores 3 mm. longæ, longe acuminatæ, pedicellos æquantes, superiores minores. *Pedicelli* cum ovario 2 mm. longi, costis sinuatis. *Sepalum* posticum lanceolatum, acuminatum, mento brevi conico obtuso. *Petala* triangularia, acuminata. *Labellum* ungue longo sursum curvum, lineare, lamina transverse elliptica rotundata basi ad unguem breviter attenuata. *Anthera* ovata, rotundata.

Camps III to VIII, and XIII, 2500 to 4900 ft., and 10,500 ft.

These latter specimens have leaves 11 cm. long and 15 mm. long. This species resembles *Ph. Lorentzii*, Kränzl., in the size of the flowers, but has quite different vegetative organs. The flowers are 2 mm. across.

PHREATIA (§ THELASIFORMES) PULCHELLA, Ridl., sp. nov.

Rhizoma tenue, gracile, pseudobulbis parvis cylindricis sæpe subremotis 4 mm. longis basi dilatatis superne angustatis. *Folia* linearia, falcata, tenuia, obtusa, inæqualiter biloba, 3–7·5 cm. longa, 1–2 mm. lata. *Scapi* laterales graciles, 4 cm. longi, dimidio inferiore nudi vaginis 3–4 ampliatis cuspidatis exceptis; flores 7–20 remoti, albi, secundi. *Bracteæ* lanceolatæ, acuminatæ, pedicellis cum ovario 1 mm. longis breviores. *Sepala* ovata, obtusa, lateralia latiora, pustulata, mento brevi lato rotundato. *Petala* breviora, ovata. *Labellum* ungue oblongo saccato, lamina ovata reniformi hastata. *Columna* majuscula, quam pes longior, crassiuscula. *Anthera* ovata, acuta.

Camps III, 2500 ft., and VI *a*, 3100 ft.

The latter form has shorter and thicker leaves and closer pseudobulbs.

Allied to *Ph. laxa*, Schlechter, but with much narrower leaves.

PHREATIA (§ THELASIFORMES) CONCINNA, Ridl., sp. nov.

Rhizoma gracile, vaginis albis tectum, pseudobulbis conicis cylindricis parvis 1·5 cm.–2 cm. longis, 1–3 mm. latis. *Folia* bina, oblanceolata, obtusa, in petiolum attenuata. *Scapi* laterales, dimidio basali nudi, 4 cm. longi. *Flores* albi, secundi, congesti. *Bracteæ* ovatæ, lanceolatæ, acuminatæ, ovarium superantes. *Ovarium* cum pedicello fusco-olivaceo 1 mm. longum. *Sepalum* posticum oblongum, apiculatum, lateralia ovata lata obtusa, mento rotundato. *Petala* oblonga, rotundata, multo minora. *Labellum* ungue oblongo saccato decurvo, lamina transverse oblonga retusa apice truncata, basi labelli et columna fusco-olivaceis. *Columna* brevis, lata. *Anthera* lata, ovata.

Camp VI *b*, 3900 ft.

Allied to *Ph. pulchella*, Ridl., but differing in the wider oblanceolate leaves, the shorter small rounded flowers, and the very different lip, which has two minute papillæ on the base of the limb.

PHREATIA GLOBULOSA, Ridl., sp. nov.

Planta pusilla, rhizomate gracili. *Caules* 2 cm. remoti, vix pseudobulbosi, vaginis tubulosis apiculatis 2–3 basi dilatatis 3 mm. longis. *Folium* cum scapo in vagina inclusum, oblanceolatum, obtusum, minute mucronulatum, 3–5 cm. longum, 7 mm. latum. *Scapus* 3 cm. longus, gracilis, acute flexuosus, basi 1 cm. nudus, superne racemosus, 21-florus. *Bracteæ* ovatæ, acuminatæ, amplexicaules, ovario cum pedicello 1 mm. longo longiores. *Flores* minuti, globosi. *Sepalum* posticum lanceolatum, cymbiforme, apice papilla atra globosa instructum, lateralia ovata, processu

cylindrico terminata, mento brevi. *Petala* minuta, ovata, obtusa. *Labellum* hastatum, obtusum. *Columna* recta, lata, ventre late excavato, margine clinandrii elevato.

Camp VI *a*, 3100 ft.

A single specimen with two flowers. I am doubtful as to the position of this very curious little plant, which is remarkable for its flexuous raceme and its minute globular flowers. The upper sepal has a globose black knob on the top, the others have cylindric processes or tails.

AGROSTOPHYLLUM RIGIDIFOLIUM, Ridl., sp. nov.

Caules 21–31 cm. longi, complanati, 1 cm. lati. *Folia* rigida, coriacea, integra, 6–7 cm. longa, 1 cm. lata, linearia, lanceolata, obtusa, apice inæqualiter biloba, vaginis 2 cm. longis complanatis oblongis. *Capitulum* sessile, nutans, 2 cm. longum et latum. *Bracteæ* oblongæ, lanceolatæ, cuspidatæ. *Pedicellus* ovario incluso 5 mm. longus. *Sepala* lanceolata, acuta, 3 mm. longa, carinata. *Petala* breviora, 1 mm. longa, linearia, obtusa. *Labellum* basi saccatum, oblongum, rotundatum, ad basin lobi medii callo oblongo emarginato munitum, lobo medio subtrilobo ovato, lobis lateralibus rotundatis, apice lanceolato acuto. *Columna* curva, crassiuscula, stelidiis oblongis truncatis magnis. *Anthera* calcariformis, magna. *Pollinia* 8, elongata, pyriformia, in caudiculum attenuata. *Rostellum* bifidum, breve.

Camp III, 2500 ft.

Allied to *A. brachiata*, J. J. Sm., but with entire rounded truncate arms to the column and a distinctly three-lobed lip, acute at the tip, instead of being ovate entire and obtuse. The leaves are close-set and very stiff and short in proportion to their length. The callus is rather large, oblong-truncate, retuse at the top, with two short processes on the outer face.

AGROSTOPHYLLUM PARVIFLORUM, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. xix. (1908) 3?

Camps I, 700 ft., and VI *a*, 3100 ft.

The flowers have perished, so I have some doubt as to the species.

AGROSTOPHYLLUM BIFLORUM, Ridl., sp. nov.

Caules graciles, 20 cm. vel longiores, 2 mm. crassi. *Folia* tenuia, graminea, linearia, apice acute biloba, 4 cm. longa, 2 cm. lata, vaginis teretibus tenuiter costatis 5–10 mm. longis. *Flores* 2, bracteis pluribus lanceolatis acuminatis mox in fibrillas disruptis. *Ovarium* sessile, 7 mm. longum. *Sepalum* posticum, lanceolatum, acuminatum, 6 mm. longum, 1 mm. latum, lateralia subsimilia, carinata, 25 mm. lata. *Petala* linearia, acuta, 5 mm. longa, 1 mm. lata. *Labellum* 6 mm. longum, obovatum, ungue brevissimo saccato, callo oblongo bifurcato elongato laminiformi, limbo tenui plane obovato obtuso, apice processu conico subtus carnoso instructo. *Columna* alta, curvula, stelidiis 2 oblongis in medio rotundatis, clinandrio magno marginibus elevatis, dorso in processum latum apice rotundatum elevato. *Rostellum* elongatum, linguiforme. *Pollinia* 8 pyriformia, basi elongata, tenuia. *Capsula* 7 mm. longa, fusiformis.

Camp VI *b*, 3900 ft.

Allied to *A. oliganthum*, Schlechter, but differing in the tall callus, which is thin, flat, and possesses two very distinct widely separate teeth in the lip, which is not three-lobed, and the very small sac. It is also a much larger plant than *A. uniflorum*, Schlechter.

AGROSTOPHYLLUM CURVUM, Ridl., sp. nov.

Caules graciles, curvi, ramosi, 35 cm. longi, basi nudi, teretes, 2 mm. crassi, superne vaginis tecti. *Folia* disticha, linearia, tenuiora apice bicuspidata, 3 cm. longa, 2 mm. lata, vaginis semiamplectentibus 1 cm. longis 8 mm. latis. *Capitulum* 5 mm. longum, sessile, cylindricum, bracteis lanceolatis acutis. *Sepala* ovata, acuta, 2 mm. longa, 1 mm. lata. *Petala* tenuia, lineari-oblonga, multo angustiora; mentum breve, sacciforme, horizontale. *Labellum* obovatum, rotundatum, basi haud saccatum, 5 mm. longum, 4 mm. latum. *Callus* ad basin lineari-oblongus, pubescens, apice truncato retuso cum dentibus 2 in angulis sitis, dente minimo in medio addito, prope callum papillis 2 in disco sitis. *Columna* crassa, lata, dorso carinata. *Stelidia* oblonga, obtusa, dentibus obtusis 2 inæqualibus. *Anthera* obtusa rotundata, conica.

Camps VI *b*, 3900 ft., and VI *c*, 5500 ft.

Apparently pendulous with slender branches, rebranched and weak; the leaves terminated by a couple of black bristle-like points, and the capitulum small and almost hidden by the bases of the leaves.

EPIBLASTUS CUNEATUS, J. J. Sm. in Nova Guinea, viii. 45, t. 16. 51.

Camps IX to XI, 5500 to 8300 ft.

Distrib. Endemic in New Guinea.

GLOMERA PAPUANA, Rolfe, Kew Bull. 1899, 111.

Camps XI to XII, 8300 to 11,000 ft.

Distrib. Endemic in New Guinea.

GLOMERA SUBULIFORMIS, J. J. Sm. in Nova Guinea, viii. t. 82.

Camp VI *a*, 3100 ft.

Distrib. Endemic in New Guinea.

GLOMERA RETUSA, J. J. Sm. in Nova Guinea, viii. t. 81.

Camp VI *b*, 3900 ft.

Distrib. Endemic in New Guinea.

This species differs from the description in the leaves being more fleshy and narrower, and not distinctly bilobed.

GLOMERA ERICIFOLIA, Ridl., sp. nov.

Caules graciles, 18 cm. longi, sæpe ramosi. *Folia* linearia, subteretia, obtusa, carnosa, læte-viridia, breviter petiolata, 1 cm. longa, vix 1 mm. lata, vaginis 5 mm. longis superne verruculosis eciliatis. *Flores* solitarii, sessiles, in axillis supremis. *Bracteæ*

basales 6 mm. longæ, in tubum connatæ, apicibus ovatis 2 mm. liberis. *Pedunculus* 2 mm. longus, crassus. *Bractea* floralis lanceolata, obtusa, 2 mm. longa. *Ovarium* crassum, sessile, 3 mm. longum. *Sepala* lanceolata, acuta, lateralia mucronulata, 4 mm. longa, 2 mm. lata. *Petala* paullo latiora, æquilonga. *Mentum* cornutum, obtusum, ad apicem attenuatum, ovario æquilongum. *Labellum* brevissimum, 2 mm. longum, ovatum, cordatum, obtusum, apice incrassatum, in medio nervo elevato bifurcato. *Columna* brevis, stelidiis carnosis linearibus obtusis mediocribus, processu infra stigma lineari obtuso, margine clinandrii in dorso elongato. *Anthera* hemisphærica.

Camp VI *b*, 3900 ft.

Allied to *G. fimbriata*, J. J. Sm., but there are no cilia on the leaf-sheaths, and the spur is longer.

Glossorhyncha grandiflora, Schlechter, in Fedde, Rep., Beihefte, i. 293. *Glomera grandiflora*, J. J. Sm. in Nova Guinea, viii. fig. 82.

Camps XII to XIII, from 11,500 to 10,500 ft.

Distrib. Endemic in New Guinea.

Glossorhyncha carnea, Schlechter, in Fedde, Rep., Beihefte, i. 293. *Glomera carnea*, J. J. Sm. l. c. t. 88. B.

Camps IX to XI, 5500 to 8300 ft.

Distrib. Endemic in New Guinea.

Glossorhyncha fruticula, Schlechter, in Fedde, Rep., Beihefte, i. 293.

Camps XIII to XIV, 10,500 to 12,500 ft.

The flowers are rather smaller than given in the description, but I suppose this is the plant intended by *G. fruticula*, J. J. Sm.

Glossorhyncha elegantula, Schlechter, in K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 130.

Camp VI *b*, 3900 ft.

The specimens differ from the plant as described in having cilia on the mouths of the sheaths of the leaves, but a specimen in the Kew Herbarium received from Schlechter shows distinct cilia.

Distrib. Endemic in New Guinea.

Mediocalcar longipes, Ridl., sp. nov.

Caules repentes, 10–15 cm. longi, vaginis tubulosis tenuibus superne dilatatis apice ovatis mucronulatis 5 mm. longis vel minoribus, pseudobulbis gracilibus cylindricis 8 mm. longis vix 1 mm. crassis. *Folia* 2, linearia, basi in petiolum attenuata, 5·5 cm. longa, 2 mm. lata, apice minute mucronulata. *Flores* solitarii, in pedunculo gracili 2 cm. longo, pedicello cum ovario 1 cm. longo. *Sepala* connata, 8 mm. longa, basi breviter gibbosa, lobis acutis angustis. *Petala* breviora, angustissima, linearia, acuta, medio carnosulo, ad marginem tenuiora, labellum

petalis brevius ungue longo carnoso canaliculato lineari, lamina ovata abrupte acuminata ad basin breviter saccato-gibbosa, nervo in medio incrassato ab ungue usque ad apicem percurrente. *Columna* gracilis elongata, ad stigma abrupte dilatata, margine clinandrii in dorso elevato rotundato ovato.

Camps X to XII, 6700 to 11,500 ft.

Apparently allied to *M. monticola*, Schlechter, but the flowers have a longer peduncle, the sepals are connate for two-thirds of their length, acute and rather similar, and the sac of the lip is very short.

Mediocalcar montanum, Ridl., sp. nov.

Rhizoma radicans, 8 cm. longum, 2 mm. crassum, vaginis tenuibus acuminatis arcte amplectentibus 1·5 longis, radicibus filiformibus, pseudobulbis cylindricis 1 cm. longis 1 mm. crassis bifoliis. *Folia* linearia, subobtusa, coriacea, apice biloba, minute mucronata, 2–4 cm. longa, 1–2 mm. lata. *Pedunculus* uniflorus, 2 cm. longus, pedicello 1 cm. longo gracili. *Flos* 1·3–1·5 cm. longus. *Sepala* ad ⅔ connata, partis liberis ovatis acutis, basi gibbosa. *Petala* oblongo-linearia, breviter acuminata, acuta. *Labellum* ungue late lineari, nervis 2 in disco elevatis, lamina abrupte triangulari acuta basi lata, costa mediana nulla. *Columna* valida, superne abrupte dilatata, clinandrii margine in dorso haud elevato. *Anthera* conica, obtusa.

Camp XIII, 10,500 ft.

This species closely resembles the preceding in external characteristics, though it is more condensed and has thicker leaves, but the different lip and column make it necessary to separate it.

Giulianetta disticha, Ridl., sp. nov. (Plate 4. fig. 71; 6. figs. 70, 72, 73.)

Caules 20 cm. alti, 1 mm. crassi, dense foliati, ubi vaginis foliorum tecti 7 mm. crassi. *Folia* disticha, linearia, obtusa, costata, coriacea, 2·5 cm. longa, 2 mm. lata, vaginis fissis marginibus crispis pallidis 1 cm. longis 6 cm. latis. *Racemus* axillaris, prope apicem caulis gracilis, erectus, pauciflorus, 5 cm. longus. *Bracteæ* inferiores lanceolatæ, acuminatæ, 19 mm. longæ, 5 mm. latæ, cæteræ minores. *Pedicelli* 2 cm. longi. *Sepala* lanceolata, acuminata, 1·3 cm. longa, 3 mm. lata, subsimilia. *Petala* ovata, acuta, 8 mm. longa, 7 mm. lata. *Labellum* basi columnæ adnatum, calcare 8 mm. longo 2 mm. lato ad basin cornuto acuminato recto obtuso, lamina oblongo-orbiculari retusa 5 mm. longa et lata. *Columna* longiuscula, 5 mm. longa, apice lata, rostello integro undulato clinandrio haud profundo, stigmate lato. *Anthera* filamento lato, ovata, acuta, bilocularis. *Pollinia* 4, pyriformia.

Camps XII to XIII, 10,500 to 11,000 ft.

The genus *Giulianetta* was founded by Rolfe on a remarkable plant very different from this in habit, but like it possessing a lip adnate to the column, and with it forming a long tubular spur. To this genus Schlechter has added *G. viridis* from New Guinea, which is more closely allied to my new species, in that it possesses broader leaves than the type. *G. disticha*, however, differs in the absence of warts and cilia on the sheaths, in possessing a two-flowered raceme, a keelless lip, and in other points.

Cœlogyne asperata, Lindl. in Journ. Hort. Soc. iv. (1849) 221.

Camps III to VI *a*, 2500 to 3100 ft.

Distrib. Malay Peninsula, Sumatra, Borneo, and New Guinea.

Cœlogyne Veitchii, Rolfe, in Kew Bull. 1895, 282.

Launch Camp, at sea-level.

Flowers white, leaves lance-shaped, 12 inches long. Pseudobulbs 3 inches long, pear-shaped, rugose.

Distrib. Endemic in New Guinea.

Cœlogyne Beccarii, Reichb. fil. in Bot. Centralb. xxviii. (1886) 345.

Camp I, 700 ft., and between Camps III and VIII, 2500 to 5500 ft.

"Petals pale greenish white, hood white at the tip, lip tawny in the centre and tip cream-white."

Distrib. Endemic in New Guinea.

I believe the plant described by Kränzlin as *C. Micholitziana*, in Gard. Chron. 1891, ii. 300, and Xenia Orchid. iii. 100, t. 256. is the same species. Reichenbach's description is bad, and the rough figure of Kränzlin's species shows no elevated margin to the clinandrium, a most unusual, if not unique, character in the genus, and therefore dubious.

Platyclinis longifolia, Hemsl. in Gard. Chron. 1881, ii. 256, forma *papuana*.

A living plant collected by Mr. Wollaston, and flowered in the Honourable Charles Rothschild's garden, June 1914; the precise locality was not noted.

P. longifolia, Hemsl., is a native of the mangrove swamps of Singapore, Johore, and Borneo, and plants identified as conspecific have been obtained in Luzon. The specimen sent by the Honourable Charles Rothschild from the New Guinea collection differs from the Singapore plant in the green not yellowish sepals and petals, the more distinctly acute lip, and the stelidia being free nearer to the stigma.

Distrib. Malay Archipelago.

Phaius Blumei, Lindl. Gen. and Sp. Orch. Pl. 127.

Camp VI *a*, 3100 ft.

Distrib. Malay Peninsula and Islands.

Calanthe Engleriana, Kränzl. in K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, Suppl. 142.

Canoe Camp, about 150 ft., and Camp III, 2500 ft.

"Flowers greenish-white, calli deep yellow."

I have little doubt that this is the plant referred to by Kränzlin, and the species figured by J. J. Smith in 'Nova Guinea,' viii. t. 7. 124. It differs, however, from the type somewhat in the size of the flowers. The perianth is 4 cm. across, the spur 5 cm. long and shorter than the ovary and pedicel, which are 7 cm. long. I doubt

whether this can be considered as anything more than a very large form of *C. veratrifolia*, R. Br. (a most variable plant in the size of the flowers and proportions of the lobes of the lip), which has a range from India, through the Malay Peninsula and Islands to Australia.

Calanthe bicalcarata, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. v. 31; and in Nova Guinea, viii. 23.

Canoe Camp, 150 ft., and at Camp I, 500 ft.

"Flowers green, centres white."

Distrib. Endemic in New Guinea.

Acanthophippium splendidum, J. J. Sm. in Natuur. Tijds. Nederl. Ind. lviii. (1898) 3, t. 5. 5–8.

Camp VI *a*, 3100 ft.

Distrib. Celebes and British New Guinea.

The plant identified by me as *A. javanicum*, Blume, in Forbes's Collections, Journ. Bot. xxiv. (1886) p. 354, appears to be this.

Spathoglottis Vieillardii, Reichb. fil. in Linnæa, xli. (1877) 85.

Canoe Camp, 150 ft.; Camps I to VI *a*, 500 to 3100 ft.

"Flowers pale mauve."

Distrib. New Caledonia.

I cannot distinguish the plants quoted above from the species originally described by Reichenbach from the Isle of Pines, and believe that it is widely distributed over the far Eastern Archipelago. Like the common *S. plicata*, Blume, it varies in non-essential parts to some extent, but I see nothing to warrant making many species out of it.

Spathoglottis oreophila, Ridl., sp. nov.

Pseudobulbi conici, 1 cm. longi. *Folia* 2–3, lineari-lanceolata, plicata, gradatim acuminata, 16 cm. longa, 5–8 mm. lata. *Scapus* 30 cm. longus, vaginis 1–2, laminis lanceolatis obtusis 2 cm. longis. *Flores* pauci, versus apicem subcongesti. *Bracteæ* ellipticæ, lanceolatæ, acuminatæ, pubescentes, 1·6 cm. longæ, 8 mm. latæ. *Pedicelli* 1·5 cm. longi, graciles. *Ovaria* 5 mm. longa, omnia velutina. *Sepala* oblonga, obtusa, carinata, pubescentia, 1·6 cm. longa, 3 mm. lata. *Petala* elliptica, obtusa, glabra, æquilonga, 7 mm. lata. *Labellum* brevius, 1·1 cm. longum, ungue nullo, lobis lateralibus e basi labello ortis lanceolatis 6 mm. longis, lobo medio spathulato basi lineari ad apicem rotundato-truncatum obscure emarginato gradatim dilatato, costa subtus in apiculum brevem excurrente, margine ad basin hirto, callis 2 rotundatis hirtis marginibus tenuibus approximatis mediocribus. *Columna* paullo curva, 8 mm. longa, e stigmate versus basin alata. *Anthera* ovata, acuta, clinandrio elevato. *Rostellum* rotundatum.

Camps IX to XI, 5500 to 8300 ft.

A somewhat dwarfed mountain plant, unusually pubescent. The lip is rather short

with no claw, and a broad apex. The two sharp-edged calli are surrounded with pubescence. The base of the column ends in a short process or callus above the lip.

PLOCOGLOTTIS MOLUCCANA, Blume, Orchidées, 64, pl. 16.

Camp III, 2500 ft.

"Flowers dull yellow spotted with crimson, lip pale yellow."

Distrib. Amboina, New Guinea.

CYMBIDIUM PAPUANUM, Schlechter, in Fedde, Rep., Beihefte, i. (1913) 953.

Camps III, VI *a*, and VIII, 2500 and 4900 ft.

Distrib. Endemic in New Guinea.

ORCHIDEÆ: SARCANTHEÆ.

SACCOLABIUM PUMILUM, Ridl., sp. nov.

Planta pusilla, caule 5 mm. longo. *Folia* 3, tenuiter carnosa, lanceolata, falcata, acuta, apice inæqualiter biloba, 2 cm. longa, 4 mm. lata. *Racemus* erectus, 3·5 cm. longus, basi per 2 cm. nudus, floribus dissitis 7–8 minimis, pedicellis cum ovario 2 mm. longis. *Bracteæ* lanceolatæ, acuminatæ, 1 mm. longæ. *Sepala* oblonga, obtusa, 2 mm. longa. *Petala* oblanceolata, spathulata, breviora. *Labellum* trilobum, lobis lateralibus erectis oblongis truncatis columnam superantibus, lobo medio brevi recurvo ovato obtuso carnoso, calcare pendulo conico basi lato cornuto obtuso 2 mm. longo, callis nullis. *Columna* longiuscula, stelidiis oblongis. *Anthera* conica. *Pollinia* 2, pyriformia, caudiculo clavato cylindrico.

Camp I, 700 ft.

A very small species with a few very small flowers.

TÆNIOPHYLLUM ERINACEUM, Ridl., sp. nov.

Caulis brevissimus, radicibus complanatis elongatis ad 40 cm. longis, 2–4 mm. latis. *Folia* nulla. *Scapi* 15–30 cm. longi, hirti, racemo conoideo denso 5 mm. longo. *Bracteæ* lanceolatæ, dense hirtæ, trichomatibus lanceolatis acuminatis subulatis pustulatis. *Ovarium* 2 mm. longum, subsessile. *Sepala* oblongo-linearia, mucronulata, 2 mm. longa, pustulata. *Petala* multo latiora, æquilonga, orbicularia. *Labellum* breve, sepalis æquilongum, lanceolatum, cymbiforme, acutum, cucullatum, lobis lateralibus brevissimis obscuris, calcare ovario æquilongo e basi dilatato cylindrico attenuato. *Columna* lata, brevis. *Rostellum* oblongum, apice bifido. *Anthera* magna, ovata, longe rostrata, rostro oblongo obtuso. *Pollinia* 2, globosa, biloba, cerea, rubra, caudiculo longo lineari apice ovato, disco æquilongo lanceolato apice incrassato flavo.

Camps VIII to IX, 4900 to 5500 ft.

I put this under *Tæniophyllum*, as it is, judging from description, nearly allied to *T. platyrrhizum*, Schlechter, and *T. torricellense*, Schlechter, but it differs very much from typical species of the genus. The whole inflorescence, except the perianth, is

covered with very curious scale-hairs, flat elongate triangular or lanceolate and pustular. The petals are much larger than the sepals, and the anther is very large in proportion to the column, with large dark red-purple pollen-masses.

TÆNIOPHYLLUM GRANDIFLORUM, Schlechter, in K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, 221.

Camp VI *a*, 3100 ft.

A very fine species with very large flowers for the genus. The fruit is cylindrical, 7 cm. long and 3 mm. through, with hardly elevated ribs.

Distrib. Endemic in New Guinea.

MICROTATORCHIS ALATA, Ridl., sp. nov.

Caulis brevissimus. *Folia* linearia, falcata, obtusa, 1–2 cm. longa, 3 mm. lata, costa elevata mucronulo terminata. *Racemi* graciles, 2–3 cm. longi, omnino floriferi, rhachi tenui bracteis decurrentibus alata. *Bracteæ* lineares, acuminatæ, vix 1 mm. longæ. *Flores* dissiti, 4 mm. longi, pedicellis 2 mm. longis. *Sepala* linearia, acuminata, caudata, fere ad basin libera, angustissima, 4 mm. longa. *Petala* similia. *Labellum* lanceolatum, acuminatum, acutum, 4 mm. longum, basi 1 mm. latum, calcare saccato globoso brevi. *Columna* brevissima, stelidiis longis erectis lanceolatis acutis. *Pollinia* 2, elliptica, rufo-brunnea, caudiculo apice lato triangulari, disco longo lineari. *Capsula* lageniformis, oblonga, costis vix elevatis, 8 mm. longa, 2 mm. lata.

Camp VI *a*, 3100 ft.

Allied to *M. perpusilla*, Schlechter, but with larger leaves, very much smaller bracts, and a winged rhachis. The wings are rather peculiar, they are quite thin and green, widest just below each bract, and gradually narrowing to the next one below.

MICROTATORCHIS MULTIFLORA, Ridl., sp. nov.

Radices crassi, suberosi, nec complanati. *Caulis* 3 mm. longus vel brevior. *Folia* oblonga, coriacea, abrupte in cuspidem acutum angustata, 4 mm. longa, 1·5 mm. lata. *Scapi* 5 mm. longi, ad basin floriferi, flexuosi, quadrangulares. *Bracteæ* ovatæ, lanceolatæ, cymbiformes, patentes, 1 mm. longæ. *Flores* parvi, flavi. *Pedicellus* cum ovario quam bractea brevior. *Sepala* ovata, triangularia, acuta, fere ad basin libera, lateralia angustiora, et magis lanceolata. *Petala* anguste lanceolata, sepalis æquilonga. *Labellum* late ovatum, excavatum, abrupte cuspidatum, æquilongum, calcare subgloboso basi angustato. *Columna* brevis, stelidiis brevibus obtusis. *Pollinia* 2, minutissima, elliptica, caudiculo filiformi gracili, disco longiore lineari oblongo. *Capsula* oblique pyriformis, 4 mm. longa, 2 mm. crassa, pedicello 1 mm. longo.

Camps XIII to XIV, 10,500 to 12,500 ft.

Allied to *M. papuana*, Schlechter, but a taller plant with free sepals and petals. The flowers appear to have been orange-yellow.

RIDLEYELLA PANICULATA, Schlechter, in Fedde, Rep. i. (1913) 948.
Camps I, 500 ft., and III to IV, to 2500 ft.
Distrib. Endemic in New Guinea.
Very fine specimens of this curious plant, formerly described by me as *Bulbophyllum paniculatum*, Journ. Bot. xxiv. (1886) 8.

PODOCHILUS APPENDICULATUS, J. J. Sm. in Ic. Bogor. ii. t. 109. fig. F.
Camp VI *c*, 5500 ft.
Distrib. Endemic in New Guinea.

PODOCHILUS SCIUROIDES, Reichb. fil. in Bonplandia, v. (1857) 41.
Camps I, 700 ft., and III, 2500 ft.
Flowers white, blotched with mauve.
Distrib. Malay Peninsula and Islands.

PODOCHILUS DENSIFLORUS, Blume, Rumphia, iv. 44.
Canoe Camp, 150 ft.; Camps I, 700 ft., and III, 2500 ft.
Distrib. Endemic in New Guinea.

PODOCHILUS PENDULUS, Schlechter, in Mém. Herb. Boiss. No. 21, p. 48, var. CHALMERSI, J. J. Sm.
Camps I, 500 ft., and VI *a*, 3100 ft.
Distrib. (of variety). Australia.

PODOCHILUS PALUSTRIS, Ridl., nom. nov.; *Appendicula palustris*, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. xix. (1908) 4.
Canoe Camp, 150 ft.; Camps I, 700 ft., and VI *a*, 3100 ft.
Distrib. Endemic in New Guinea, but probably only a local variety of *P. pendulus*, as is doubtless *P. dendrobioides*, J. J. Sm.
One specimen has a branched raceme.

PODOCHILUS FLACCIDUS, Schlechter, in K. Schum. & Lauterb. Fl. Deutsch. Schutzg. Südsee, Supp. p. 117.
Camps I, 700 ft., III, 2500 ft., and VI *a*, 3100 ft.
"Dull green and brown."
Distrib. Endemic in New Guinea.

APPENDICULA BILOBA, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. xxii. (1909) 42, and in Nova Guinea, viii. 141, t. 46. 156.
Camps III, 2500 ft., and VI *a*, 3100 ft.
Distrib. Endemic in New Guinea.

THELASIS CAPITATA, Blume, Bijdr. 386.
Camp VI *b*, 3900 ft.
Distrib. Malay Peninsula and Islands.

ORCHIDEÆ: NEOTTIEÆ.

SPIRANTHES AUSTRALIS, Lindl. Bot. Reg. t. 823.

Camps X to XIII, 6700 to 10,500 ft.

Flowers white.

Distrib. India, North Asia, Java, Australia, and New Zealand.

EURYCENTRUM GOODYEROIDES, Ridl., sp. nov.

Herba 27 cm. alta. *Folia* basalia 3, ovata, glabra, minute cuspidata, basi rotundata, 3 cm. longa, 2·2 cm. lata, petiolis vaginantibus 5 mm. longis. *Caulis* pubescens, basi per 15–18 cm. nudus, bracteis 3 vaginantibus lanceolatis linearibus acuminatis 5 mm. longis. *Racemus* secundus, 10 cm. longus, pubescens, floribus circiter 14. *Bracteæ* lanceolatæ, acuminatæ, longe cuspidatæ, 7 mm. longæ. *Flores* parvi, sessiles, ovariis pubescentibus. *Sepalum* posticum, cum petalis in galeam connatum, 3 mm. longum, extus parce pubescens, lateralia augusta, lanceolata, linearia, æquilonga. *Labellum* lamina brevi obtusa triangulari-ovata basi latiore, calcare pendulo 5 mm. longo saccato obtuso, basi callis pustulosis lobatis subglobosis instructum.

Camp III, 2500 ft.

A taller plant than the other species described by Schlechter.

The genus is entirely Papuan, and is hardly generically distinct from *Cystorchis*, to which Blume attributed the first species described.

CRYPTOSTYLIS ARACHNITES, Blume, Orch. Arch. Ind. 132, t. 45.

Camp I, 500 ft.

Distrib. From the Himalayas to Ceylon, Malay Peninsula and Islands.

CORYSANTHES LONGIPETALA, Ridl., sp. nov.

Caulis 1·5 cm. longus. *Folium* ovatum, integrum, sessile, subacutum, 2 cm. longum, 1·5 cm. latum, glabrum. *Ovarium* 5 cm. longum. *Sepalum* posticum anguste lanceolatum, acuminatum, 1·5 cm. longum, cæteris angustioribus petalis similibus. *Petala* linearia, filiformia, 3 cm. longa. *Labellum* basi tubulosum, e calcaratum, crassiusculum, 5 mm. longum, lamina late orbiculari fimbriata 1 cm. lata. *Columna* brevissima. *Anthera* columna æquilonga, loculis ellipticis rotundatis; alæ columnæ magnæ, elliptice rotundatæ. *Rostellum* integrum. *Stigma* majusculum. *Pollinia* elliptica, oblonga.

Utakwa Valley; locality not stated.

Resembling *C. picta*, Blume, but the lip not spurred, and the dorsal petal quite different.

CORYSANTHES KLOSSII, Ridl., sp. nov.

Caulis 10 cm. longus. *Folium* ovatum, acutum, sessile, in margine crenulatum, 1·5 cm. longum, 1 cm. latum. *Ovarium* cum pedicello 5 cm. longum. *Sepala* anguste filiformi-linearia, 4 mm. longa, posticum magnum, obovatum, rotundatum,

unguiculatum, album, integrum, 2 cm. longum, 1 cm. latum. *Petala* filiformia, 4 cm. longa. *Labellum* obovatum, 1·5 cm. longum, marginibus fimbriatis pallidis, centro atro-purpureo, basi tubulosum, calcaribus 2 brevibus obtusis. *Anthera* magna, cucullata, atropurpurea. *Pollinia* semielliptica, flava. *Alæ* columnæ breves, latæ, oblongæ, truncatæ.

Camps XII to XIII, 11,000 to 12,500 ft.

PTEROSTYLIS NOVO-GUINEENSIS, Ridl., sp. nov.

Herba 22 cm. alta. *Folia* basalia, subrosulata, carnosa, lanceolata, obtusa, viridia, glabra, 3 cm. longa, 1 cm. lata, nervis et nervulis elevatis. *Folia* caulina, lanceolata, acuminata, superne angustiora, 3 cm. longa. *Flos* singulus, ovario 2 cm. longo. *Sepalum* posticum lanceolatum, acuminatum, curvum, galeatum, 5 cm. longum, 2 cm. latum, minute pustulatum, lateralia angustiora, apice elongato filiformi erecto. *Petala* angusta, lineari-lanceolata, acuminata. *Labellum* lanceolatum, acuminatum, 1·5 cm. longum, 3 mm. latum, appendice lineari curvo apice penicillato. *Columna* 2 cm. longa, alis magnis tenuibus obtusis triangularibus pallidis 5 mm. longis, pede breviusculo. *Stigma* angustum, oblongum. *Anthera* oblonga, obtusa.

Camps XI to XII, 8300 to 11,000 ft.

This, the second species of the genus found in Papua, seems most closely allied to *P. Baptisti*, Fitzg.

ORCHIDEÆ: OPHRYDEÆ.

HABENARIA PAPUANA, Kränzl. Monog. Hab. 179.

Camp VI *a*, 3100 ft.

Distrib. Endemic in New Guinea.

HABENARIA (§ PLANTAGINEÆ) PHILOPSYCHRA, Ridl., sp. nov.

Herba carnosula, 10 cm. longa. *Folia* basalia rosulata, parva, carnosa, ovata, subacuta, sessilia, 1 cm. longa et lata, glabra; caulina 8, lanceolata, acuminata, 1·3 cm. longa. *Racemus* 6 cm. longus, floribus approximatis. *Bracteæ* late lanceolatæ, acuminatæ, ovariis æquilongæ vel longiores, 1 cm. longæ. *Flores* parvi, ovariis 8 mm. longis. *Sepala* ovata, oblonga, obtusa, lateralia quam posticum longiora, deflexa, lanceolato-ovata, 2 mm. longa. *Petala* ovata, obtusa, sepalo postico æqualia vel longiora. *Labellum* carnosum, ungue brevi, lamina deflexa brevi lata obscure triloba, lobis lateralibus brevissimis ovatis obtusis, medio paullo longiori linguiformi, ad basin laminæ callo transverso curvo instructo, calcare 3 mm. longo basi angustato tunc dilatato apice attenuato acuto. *Anthera* brevis, elliptica, obtusa, processubus brevissimis. *Stelidia* antheræ fere æquilonga, oblonga, lata, apice rotundata.

Camp XIII, 10,500 ft.

HABENARIA (§ HOLOGLOSSA) KLOSSII, Ridl., sp. nov.

Herba 20–23 cm. alta, gracilis, pauciflora. *Folia* basalia 2, elliptica, ovata, acuta, glabra, subtus pallidiora, carinata, 3·5 cm. longa, 1·5 cm. lata, nervis 7, nervulis transversis, petiolo cum vagina 1·6 cm. ad 2·5 cm. longo. *Folia* caulina plura, lanceolata, acuminata aut cuspidata, inferiora 2 cm. longa, trinervia. *Racemus* 6 cm. longus, floribus dissitis 5. *Bracteæ* lanceolatæ, acuminatæ, 5 mm. longæ. *Ovarium* brevissime pedicellatum, 1 cm. longum. *Sepalum* posticum ovatum, acuminatum, obtusum, carinatum, erectum, fere 3 mm. longum; lateralia lanceolata, deflexa, carinata, 3 mm. longa. *Petala* lanceolata, obtusa, quam sepalum posticum breviora. *Labellum* integrum, lanceolatum, acuminatum, obtusum, pugioniforme, carnosum, quam sepalum posticum longius, calcare filiformi 1 cm. longo ovario æquilongo. *Columna* lata, processubus brevibus truncatis, stelidiis oblongis brevibus pustulosis. *Pollinia* pyriformia, caudicula longiore filiformi, glandula elliptica mediocri.

Camp VI *c*, 5500 ft.; Camp III, 2500 ft. (a form with shorter spur).

ORCHIDEÆ: CYPRIPEDIEÆ.

CYPRIPEDIUM PAPUANUM, Ridl. in Gard. Chron. ser. 3, lviii. (1915) 131.

Camp III, 2500 ft.

SCITAMINEÆ.

(By H. N. RIDLEY.)

ZINGIBERACEÆ.

CURCUMA ZEDOARIA, Rosc. Scitam. t. 109.

Canoe Camp, 150 ft.

"Upper bracts pale mauve-crimson, lower green. Flowers pale yellow."

Distrib. Widely distributed through Asia.

TAPEINOCHILUS BECCARII, K. Schum. in Engl. Bot. Jahrb. xxvii. (1899) 348.

Canoe Camp, 150 ft.

"Inflorescence carmine, near the ground. Leaves at the top of the cane 6 to 10 ft. high."

Distrib. New Guinea.

TAPEINOCHILUS RECURVATUM, K. Schum. in Engl. Bot. Jahrb. xxvii. (1899) 349; in Engl. Pflanzenreich, H. 20, p. 436.

Canoe Camp, 150 ft.

Distrib. New Guinea.

THYLACOPHORA, Ridl., gen. nov.

Calyx spathaceus, haud tubulosus, elongatus, fere ad basin fissus, lanceolatus, acuminatus. *Corolla* tubo brevissimo, lobis 3 inæqualibus lanceolatis elongatis acuminatis tenuibus, labello bifido lobis corolla brevioribus angustis linearibus hirtis. *Stamen*

elongatum, petalo dorsali æquale, filamento lineari, anthera angusta linearis, loculis approximatis, connectivi appendice nullo. *Stylus* elongatus, gracilis. *Stigma* parvum, conicum. *Capsula* elongata, ad basin in valvas 3 fissa. *Semina* 3–4, uniseriata, oblonga, subquadrata, canaliculata, atra, arillo carnoso lobato flavo.—Herba. *Folia* lanceolata, acuminata, epetiolata, ligula elongata. *Racemus* terminalis, elongatus, laxus, multiflorus; bracteæ parvæ, lineares. *Flores* magni.

THYLACOPHORA POGONOCHEILA, Ridl., sp. nov.

Caulis ultra 30 cm. longa. *Folia* lanceolata, longiuscule acuminata, subherbacea, glabra, ad basin angustata, 30 cm. longa, 4 cm. lata, sessilia, ligula 2·5–3 cm. longa lanceolata acuta, vagina herbacea striata. *Racemus* nutans, pedunculo gracili 30 cm. longo insidens, parte florifera 15–30 cm. longa, rhachi pubescente, floribus singulis vel binis dissitis majusculis albis et pallide flavis, pedicellis 5 mm. longis, ovariis infundibuliformibus glabris 5 mm. longis. *Calyx* spathaceus, brunneus, herbaceus, in alabastris capsiciformibus, corollam tegens, lanceolatus, acuminatus, basi latus, apice acutus, minute tridentatus, 3·5 cm. longus, basi 7 mm. latus. *Corolla* tubo 2 mm. longo, lobo postico tenui lanceolato obtuso apice cucullato margine ciliato, 4 cm. longo, 7 mm. lato, lateralibus tenuioribus linearibus acuminatis 3 cm. longis 2 mm. latis. *Labellum* basi saccatum, 5 cm. longum, lobis 2 linearibus 1·2 cm. longis angustis dense hirsutis, præsertim in linea mediana. *Stamen* 4 cm. longum, filamento longo plano, anthera 1 cm. longa, lineari-cylindrica, loculis angustis ad apicem et basin breviter disjunctis. *Stylus* æquilongus, filiformis, stigmate terminali parvo. *Stylodia* magna, obovata, bilobata, carnosa. *Capsula* 3 cm. longa, basi angustata, versus apicem dilatata, in valvas 3 ad basin fissa, valvis 4 mm. latis, placenta in medio capsulæ fissæ persistente. *Semina* uniseriata 4, atra, oblonga, canaliculis 7–8, apice depressa, 5 mm. lata, 2 mm. longa, arillis cupuliformibus ochreis cereis lobatis lobis truncatis.

Canoe Camp, 150 ft.

A very remarkable plant, the affinity of which appears to me very doubtful. The spathaceous corolla and saccate bifid lip are unlike anything I know in the order. The stamen most resembles that of *Hedychium*.

AMOMUM BICORNUTUM, Ridl., sp. nov.

Folia lanceolata vel oblongo-lanceolata, cuspidata, basi cuneata vel rotundata, glabra, apice et ad costam pubescentia, 45 cm. longa, 6·8 cm. lata, petiolo brevi 2 cm. longo canaliculato. *Capitulum* obconicum, 4 cm. longum, 3½ cm. latum, sessile. *Bracteæ* oblongo-ovatæ, tenues, imæ aureo-sericeæ, mucronulatæ, 2 cm. longæ, 1·2 cm. latæ, superiores longiores, glabrescentes. *Bracteæ* florales tenues, anguste lanceolatæ, costa mediana 2 cm. longa glabra. *Calyx* spathaceus, fissus, fere ad basin oblanceolatus, acutus, dentibus tribus minimis, 3·5 cm. longus, 1 cm. latus ubi latissimus. *Corolla* tubo 3 cm. longo superne paullo dilatato, lobis purpureis lanceolatis subacutis 3 cm. longis 5 mm. latis. *Labellum* obovatum, obtusum, integrum, 1·5 cm. longum, 1 cm. latum. *Stamen* filamento lineari-oblongo, anthera thecis angustis,

appendice brevi, ad apices loculorum cornubus duobus ovatis rotundatis parvis instructa. *Stylus* vix longior, stigmate triangulari recurvo hirto.

Camp VI *a*, 3100 ft.

The whole flower appears to have been purple except the corolla-tube and calyx. The stamen is deeply excavate in the apex between the cells, behind each of which rises a small, rounded, fleshy ovate process.

AMOMUM PELLITUM, Ridl., sp. nov.

Folia oblongo-linearia, longe acuminata, basi breviter angustata, obtusa, glabra, 50 cm. longa, 7·5 cm. lata, sessilia, ligula vix distincta, vagina reticulata hirta. *Racemus* obovatus, 7 cm. longus, 9 cm. latus, pedunculo 9 cm. longo brunneo velutino, bracteis caulinis lanceolatis dissitis 3·5 cm. longis. *Bracteæ* racemi lanceolato-ovatæ, obtusæ, mucronulo setiformi minuto instructæ, tenuiter coriaceæ, glabræ, læves, 3–4 cm. longæ, 2 cm. latæ, copiosæ. *Bracteæ* florales anguste lanceolatæ, tridentatæ, apice et basi pubescentes, 2 cm. longæ, tenues. *Calyx* spathaceus, æquilongus, lanceolatus, dentibus 3 brevibus inæqualibus (medio breviore) apice ciliatis. *Corollæ* tubus gracilis, æquilongus, basi pubescens; lobi lineares, oblongi, apice pubescentes, 7 mm. longi, 2 mm. lati. *Labellum* 1 cm. longum, 8 mm. latum, obovatum, apice oblongo bilobo abrupte angustato. *Stamen* quam corolla brevius. *Anthera* oblonga, apice retusa, appendice nullo, connectivo autem in dorso antheræ loculorum brevissime libero loculis vix longiore. *Stylus* gracilis, stigmate late obovoideo. *Ovarium* oblongum, sericeum. *Capsula* elliptica, 12 mm. longa, appresse sericeo-hirta.

Canoe Camp, 150 ft.

This small-flowered species belongs to the section in which the connective of the stamen is not prolonged into a distinct crest. It is, however, very shortly freed in the form of two short rounded lobes just behind the tips of the anther-cells. The bracts of the large raceme are of a smooth, thin, leathery texture and quite glabrous, except the basal one, which is slightly pubescent at the base. The leaf-sheath is very curiously reticulate with oblong or elliptic pits with raised hairy edges. These pits are 2–3 mm. long. Apparently nearest to *Geanthus bromeliopsis*, Val. in Nova Guin. viii. 935, tab. 166 B, but the bracts are not "subcucullatæ duriusculæ" nor is the ligule conspicuous, and all parts are smaller.

ALPINIA (§ HELLENIA) CORDYLINOIDES, Ridl., sp. nov.

Folia lanceolata, acuminata vel oblanceolata, basi angustata, 34 cm. longa, 4·5–8 cm. lata, nervis primariis 12, e costa ascendentibus, ligula nulla, vagina costata omnino glabra. *Panicula* apice in racemum abiens, 15–25 cm. longa, basi per 2 mm. nuda, ramis 5–6 lateralibus patentibus 7 cm. longis. *Flores* copiosi, dense approximati, rosei. *Bracteæ* lanceolatæ, cuspidatæ, papyraceæ, caducæ, 9 cm. longæ, 1 cm. latæ. *Pedicelli* 1 mm. longi. *Ovarium* turbinatum, 1 mm. longum. *Calyx* urceolatus, 4 mm. longus, haud fissus, dentibus 2 subulatis tubi dimidio æqualibus. *Corolla* 1 cm. longa, tubo gracili longo, lobis oblongis obtusis rotundatis, postico

longiore cucullato et corniculato. *Labellum* brevius, obovatum, bilobum, lobis brevibus rotundatis. *Stamen* brevius, filamento gracili plano, anthera brevi oblonga, loculis obtusis, appendice nullo. *Stylus* gracilis, stigmate minimo. *Stylodia* pulviniformia.

Camps VI *a*, VI *b*, VI *c*, 3100 to 5500 ft.

This, at least when dry, curiously resembles a *Cordyline*. The calyx (apparently rose-pink) separates from the ovary. The corolla, which appears to have been white or rosy-white, has a rather long slender tube and short lobes. The whole plant is glabrous.

ALPINIA HIMANTOGLOSSA, Ridl., sp. nov.

Folia oblonga, apice angustata, acuminata, acuta, basi cuneata, herbacea, superne glabra, subtus molliter velutinosa, 50 cm. longa, 9 cm. lata, petiolis longis gracilibus, ligula lanceolata obtusa apice hirta 1·7 cm. longa, vagina fere glabra. *Panicula* 7–8 cm. longa, pedunculo 10 cm. longo suffulta, e capitulis 3 subsessilibus remotis oblanceolatis basi angustatis 3–4 cm. longis composita, rhachi lanuginosa. *Bracteæ* tenues, caducæ, oblongæ, mucrone 3 cm. longo, glabræ, 7·5–9 cm. longæ vel (superiores) minores. *Bracteæ florales* ovatæ, involutæ, breviter mucronatæ, 8–10 mm. longæ, dense sericeo-hirtæ. *Flores* parvi. *Calyx* tubo brevi 1 cm. longo glabro, lobis lanceolatis corniculatis ad basin hirtis. *Corolla* tubo calyce æquilongo, lobo postico lanceolato oblongo longe corniculato et cucullato 8 mm. longo in dorso parce hirto, lateralibus lanceolatis obtusis. *Labellum* lineare, angustum, carnosum, truncatum, stamen superans. *Stamen* filamento lineari oblongo; antheræ loculis ellipticis oblongis dorso hirtis, appendice nullo. *Stylus* quam stamen longior. *Stigma* ovoideum, in medio fovea transverso notatum.

Camp VI *b*, 3900 ft.

This plant resembles in the form of the flower to some extent an *Eriolopha*, but there is no distinct crest to the stamen, the connective is very slightly prolonged beyond the loculi in two lobes and is hairy, as is the back of the anther. The lip has the peculiar narrow truncate form of that genus, and the style is long with a curious club-shaped stigma of which the stigmatic cleft is well below the apex of the stigma.

ALPINIA TEPHROCHLAMYS, K. Schum. & Lauterb. in Engl. Bot. Jahrb. xxvii. (1899) 277; Fl. Deutsch. Schutzg. Südsee, 226; in Engl. Pflanzenreich, H. 20, p. 322.

Camps VI *a* and VI *b*, 3100 to 3900 ft.

Var. ASPERICAULIS, K. Schum. & Lauterb. l. c. 226.

Camp I, 500 ft.

Originally collected in Kaiser Wilhelm's Land by Lauterbach.

In habit and general form of the flowers this resembles the genus *Plagiostachys* very closely, but the stamen is long with a rather narrow linear filament (Schumann, however, gives it as "filamentum latissimum"), and there are no traces of the side lobes, or rather teeth, on the base of the lip. The variety *aspericaulis* is at first sight very different in appearance, the leaf-sheath being transversely barred with undulated thickened corky lines, broken up and running from and over the ribs. These can be

traced passing into the curious short transverse bars between the ribs which form the "cancellation" or fenestration of many Scitamineæ in Borneo and Sumatra. In this form, too, the margin of the sheath in the upper part is fringed by acuminate fimbriate processes as much as 3 cm. long. In the typical form there is nothing of this, the sheaths are not even cancellate, nor are their margins fringed or broken up in any way. The inflorescence and flowers are identical in both forms.

The calyx and lip are gland-dotted, the stylodes fleshy, oblong, truncate, with short blunt teeth, the style slender, hooked at the tip, with a very small stigma.

Alpinia porpyhrocarpa, Ridl., sp. nov.

Caulis altus, validus, 1·5 cm. crassus. *Folia* coriacea, oblonga, lanceolata, basi lata, 50 cm. longa, 15 cm. lata, breviter vel vix petiolata, petiolo 1 cm. (vel minus) crasso, ligula ovato-rotundata 1 cm. longa pubescente, vagina minute cancellata pubescente. *Panicula* terminalis, decurva, pedunculo 4 cm. longo 7 mm. crasso pubescente, parte florifera 12 cm. longa, capitulis ad 6 appressis multi-bracteatis multifloris 4 cm. longis secundis. *Bracteæ* ovatæ, amplectentes, pubescentes, 3 cm. longæ. *Bracteæ* secundariæ, late ovatæ, carinatæ, mucronatæ, 4 cm. longæ, 2 cm. latæ, coriaceæ, marginibus denticulatis hirtis, inferiores plures steriles. *Calyx* (in fructu) tubo brevi 1 cm. longo sericeo in uno latere breviter fisso, lobis lanceolatis acuminatis cuspidatis costatis æquilongis. *Corolla* tubo gracili 1·5 cm. longo, lobis crassis sericeis lineari-oblongis, postico corniculato cucullato 1 cm. longo, cæteris vix brevioribus. *Labellum* æquilongum, lineari-oblongum, obtusum, sub-cymbiforme, extus sericeum. *Stamen* filamento brevi. *Anthera* dorso dense sericea, appendice longo bifido sericeo. *Stylus* longior, stigmate late obovoideo truncato. *Capsula* globosa, pubescens, grisea, 4 cm. longa.

Canoe Camp, 150 ft.

"Flowers yellow, fruit mangosteen colour."

This fine plant appears to be nearest to *A. macrocephala*, K. Schum., one of the two plants included in his section *Amomiceps*, differing largely, however, in its many-bracted compound inflorescence, the denticulate bracts, and the presence of an appendage to the anther. The other plant given in his section *Amomiceps*, namely, *A. capitellata*, Jack., has nothing in common with *A. macrocephala*, and is very closely allied to *A. javanica*, Blume.

Alpinia pterocarpa, K. Schum. in Engl. Pflanzenreich, H. 20, p. 322.

Canoe Camp.

"Fruit greenish ochre, flowers white, lip yellow." The flowers have not been described previously. The following description may therefore be added here:—*Ovary* obconic, silky. *Calyx* tubular, dilated, with 2 lateral teeth 2 mm. long, acuminate, hairy at the tip, and a short median one, 8–9 mm. long, gland-dotted. *Corolla* tube shorter, lobes ovate, 5 mm. long, obtuse, silky on the back and gland-dotted on the margins. *Lip* broadly ovate, boat-shaped and suddenly narrowed to an oblong rounded tip, glabrous, gland-dotted, adnate from the base to the stamen, 7 mm. long. *Stamen* 1 cm. long, filament linear, with wide wings decurrent into the lip and two raised lines up the

centre. *Anther* cells linear. *Style* slender, little longer than the stamen ; stigma very small, hooked.

The whole inflorescence, about 7 cm. long, is narrower and fewer-flowered than that of *A. tephrochlamys*; the calyx is dark brown when dry, and stiffer in texture than the thin membranous one of that species; the stamen is shorter and more excavate, the wings elevated, and running down to join the lip. The lip is almost 3-lobed, the side lobes being large and rounded. The whole plant differs much in pubescence, the leaves of the fruiting specimen being softly velvety hairy on the back, and those of the flowering specimens nearly glabrous.

ALPINIA (§ HELLWIGIA) KERMESINA, Ridl., sp. nov.

Caulis validus, ultra 1 cm. crassus, kermesinus. *Folia* lanceolata, acuminata, 34–60 cm. longa, 4–6 cm. lata, gradatim ad basin angustata, tenuiter coriacea, glabra; petiolus gracilis, 6 cm. longus; ligula oblonga, obtusa, 5 mm. longa; vagina cancellata. *Panicula* laxa, patens, rigida, 8 cm. longa, pedunculo vaginis tecto 10 cm. longo, ramis 4–7 rigidis remotis 4 cm. longis vel brevioribus, rhachi flexuosa lignosa angulata. *Bracteæ* bifloræ, tubulosæ, coriaceæ, bicarinatæ, ore integro, 1·4 cm. longæ. *Calyx* coriaceus, 1 cm. longus, tubulosus, lobis ovatis triangularibus acutis æqualibus. *Corollæ* tubus brevissimus, quam calyx multo brevior, lobis oblongis obtusis, postico longiore 1 cm. longo corniculato, cæteris 5 mm. longis carnosis. *Labellum* 4 mm. longum, lineari-oblongum, angustatum, obtusum, in ventre carinatum. *Filamentum* breve, lineare, planum, dentibus 2 prope antheram positis acuminatis. *Anthera* oblonga, appendice ovato obtuso hirto. *Capsula* globosa, kermesina, rotundato-triquetra, basi plana, apice calyce coronata, 9 mm. longa et lata, trilocularis, septis tenuibus. *Semina* copiosa, minuta, atra, arillo parvo.

Camp III, 2500 to 3100 ft.

Stem, panicle and fruit crimson, flowers white. This beautiful plant is closely allied to *Hellwigia pulchra*, Warb., differing in the tubular bracts containing only two flowers, the glabrous calyx, very short corolla-tube, and the large hairy staminal appendage. Like that species, it has the remarkable staminodial teeth on the filament on each side of the anther.

ALPINIA (§ HELLWIGIA) RIGIDA, Ridl., sp. nov.

Caulis validus, 1 cm. crassus. *Folia* coriacea, glabra, elliptico-lanceolata, basi cuneata, 40 cm. longa, 9 cm. lata, petiolo 8 mm. longo ad basin alato, ligula oblonga truncata lata integra 5 mm. longa, vagina cancellata. *Panicula* valida, 30 cm. longa, rhachi angulata 5 mm. crassa costata pubescente, internodiis 2–4 cm. longis. *Spicæ* sessiles, cylindricæ, patentes, bifloræ (ima pedunculata, pedunculo 1 cm. longo). *Bractea* tubulosa integra 3·5 cm. longa, cuspide brevi e carina excurrente et cum ore pubescente. *Bracteolæ* similes minores. *Flores* 2, pedicellis linearibus planis molliter pubescentibus. *Ovarium* oblongum, 5 mm. longum, sericeo, pubescens. *Calyx* 2 mm. longa, tubulosa, in uno latere fissa, coriacea, dentibus 3 linearibus

sericeis 3 mm. longis. *Corolla* tubo quam calyx multo breviore, lobo postico carnoso lineari recurvo 1·2 cm. longo, aliis linearibus oblongis planis 6 mm. longis. *Labellum* oblongum, undique hirtum, stamini æquilongum, calyce brevius. *Anthera* loculis angustis, brevibus, appendice magno oblongo apice rotundato utrinque hirto. *Stigma* magnum, late triangulatum, rotundatum, hirtum.

Camp VI *a*, 3100 ft.

Allied to *A.* (§ *Hellwigia*) *pulchra*, but with two flowers only in the spike, short-petioled leaves, a shorter broader lip, and a large hairy crest to the stamen. A remarkably stiff plant.

PSYCHANTHUS, Ridl., gen. nov.—ALPINIÆ sectio, K. Schumann, in Engl. Pflanzenreich, H. 20, p. 319.

Herba foliis lanceolatis, inflorescentia terminali multiflora, labello obovato vel oblongo integro, filamento cymbiformi, denticulis duobus (ut videtur staminodiis) ad apicem prope antheram sitis, connectivo appendiculo nullo.

The following Papuan species are referable to this genus:—*Alpinia compta*, K. Schum. in Engl. Bot. Jahrb. xxvii. (1899) 277; *A. papilionacea*, K. Schum. Fl. Kaiser Wilhelm's Land, 29; *A. platynema*, K. Schum. in Engl. Pflanzenr. H. 20, 438; *A. scyphonema*, K. Schum. ll. cc. et probabiliter *A. Schlechteri*, K. Schum. l. c. 438; *A. floribunda*, K. Schum. l. c. 439; and *A. Gjellerupi*, Val. in Nova Guinea, viii. 5. 938.

PSYCHANTHUS INÆQUALIS, Ridl., sp. nov.

Folia angusta, lanceolata, acuminata, basi cuneata, inæquilateralia, tenuiter coriacea, glabra, longe petiolata, 35 cm. longa, 3 cm. lata; petiolus gracilis, 4 cm. longus, 2 mm. crassus; ligula 1 cm. longa, lineari-oblonga, retusa, marginibus brunneo-lanuginosis; vagina tenuiter costata nec cancellata, marginibus hirtis. *Inflorescentia* terminalis, sessilis, spicis tribus erectis cylindricis, 6 cm. longis, bracteis truncatis coriaceis circiter 9 imbricatis glabris ad margines parce pilosis tectis. *Flores* singuli in pedicellis 7–8 mm. longis sericeis. *Calyx* cylindricus, 2 cm. longus, tenuiter coriaceus, glaber, apicibus loborum triangulorum brevium vix 1 mm. longorum exceptis. *Ovarium* parvum, 2 mm. longum, glabrum. *Corolla* tubo calyci æquilongo lobo postico 3·5 cm. longo basi 5 mm. superne 2 mm. lato angustus carnoso, lobis lateralibus linearibus oblongis 2 cm. longis 2 mm. latis. *Labellum* integrum, lineare, planum, medio incrassatum, 2 cm. longum, 3 mm. latum. *Staminis* filamentum oblongum, cymbiforme, processubus apice 2 bilobis (uno lobo minimo). *Antheræ* apice bilobæ, dorsifixæ; loculi lineares, divulsi, connectivi appendice nullo. *Stylus* validus, stigmate obconico sericeo-hirto. *Capsula* globosa, lævis, 1 cm. longa et lata, pericarpio coriaceo. *Seminis* plura, obovoidea, arillis tenuibus albis cupuliformibus, marginibus albo-lanuginosis.

Camp VI *b*, 3900 ft.

Very distinct from the others in the long petioled leaves and cylindrical spikes covered

with stiff imbricate bracts, and the remarkably unequal corolla-lobes. The stylodes at the base of the style almost surround it, and are irregularly lobed.

GUILLAINIA SUPERBA, Ridl., sp. nov.

Herba valida, caulibus 1 cm. crassis. *Folia* oblonga vel lanceolata, subacuta, basi rotundata vel cuneata, glabra ad margine, pubescentia, 30 cm. longa, 7 cm. lata, petiolo 5 mm. longo; ligula biloba, lobis ovatis obtusis, hirta, 4 mm. longa; vagina costata, pubescens, marginibus barbatis. *Racemus* pendulus, 18 cm. longus, rhachi pubescente. *Bractea* basalis lanceolata, oblonga, 12 cm. longa, 2 cm. lata, pubescens, ad margines sericea, mucrone dorsali 1·8 cm. longo lanceolato acuto. *Bracteæ* superiores florales oblongæ, apice ovatæ, ad margines pubescentes, rubræ. *Flores* singuli, subsessiles. *Ovarium* cylindricum, obscure triquetrum, glabrum, 6 mm. longum. *Calyx* subcylindricus, uno latere complanatus et breviter fissus, ruber, dentibus ovalibus mucronatis ciliatis 4 mm. longis, mucrone subulato acuto. *Corollæ* tubus vix calycem superans, lobis oblongis obtusis 12 mm. longis 5 mm. latis carnosulis. *Labellum* lineari-oblongum, 11 mm. longum, 4 mm. latum, marginibus pro parte majore elevatis, carnosum, linea mediana incrassata. *Staminis* filamentum crassum, breve, dentibus linearibus acuminatis. *Anthera* oblonga, hirta, appendice magno subquadrato hirto. *Stylus* validulus, stigmate obcuneato truncato glabro. *Ovarium* triloculare. *Capsula* elliptica, perianthio coronata.

Canoe Camp and Camp III, 150 to 2500 ft.; Camp VI *a*, 3100 ft.; VI *b*, 3900 ft.

This differs from *G. purpurata*, Vieill., in the more oblong bracts, pubescent ligule and sheath, the entire lip and entire appendage. *Alpinia rosacea*, Val., appears to be closely allied to this plant, but the leaves are not subsessile, the ligule is bilobed, and the calyx is quite different in form.

GUILLAINIA MINOR, Ridl., sp. nov.

Caulis subgracilis. *Folia* lanceolata, acuta, basi angustata, 19 cm. longa, 2·5 cm. lata, glabra, petiolo 5 mm. longo, ligula oblonga 4 mm. longa hirta, vagina glabra cancellata. *Racemus* nutans, 6·5–7 cm. longus, 8 cm. latus, obconicus. *Bracteæ* basales lanceolatæ, cuspidatæ, glabræ (vel una hirta). *Florales* oblongæ, apice rotundatæ, glabræ, 3·5 cm. longæ, 1·5 cm. latæ, corallinæ. *Flores* singuli, sessiles, lactei. *Ovarium* oblongum, glabrum, 4 mm. longum. *Calyx* 1 cm. longus, 4 cm. crassus, glaber, dentibus 3 pugioniformibus 5 mm. longis. *Corollæ* tubus brevior, lobis oblongis obtusis extus sericeis 7 mm. longis 2 mm. latis. *Labellum* oblongum, cymbiforme, extus longe sericeum, corollæ lobis subæquilongum. *Anthera* dense sericea, æquilonga, appendice oblongo quadrato truncato obscure dentato extus sericeo. *Stylus* longior, glaber, stigmate obconico glabro. *Capsula* subglobosa, perianthio coronato kermesino.

Canoe Camp, 150 ft.

This species differs from the preceding in the smaller size of its leaves, stem, and inflorescence; in the silky petals, lip, and anther; and the wider boat-shaped lip, which is nearly as long as the petals.

ERIOLOPHA, Ridl., in Hook. Ic. Pl. t. 3067 (1916).

Calyx tubulosus. *Corollæ* tubus vix longior, sæpius brevior, lobi oblongi, cucullati. *Labellum* breve, filamento in tubo incluso. *Anthera* oblonga, connectivi appendice magno oblongo crasso utrinque hirsuto. *Stylus* crassiusculus, stigmate majore clavato hirto. Herbæ foliis lanceolatis sessilibus. Inflorescentia paniculata terminalis, spicis dissitis vel in capitulis congestis paucifloris vel multifloris sæpe gradatim elongatis, bracteis coriaceis ovatis oblongis truncatis, floribus parvis pedicellatis.

Species numerous, all Papuan.

Species laxe paniculatæ, spicis remotis cylindricis gradatim elongatis.
Panicula foliis brevior, ramis crassis, patentibus.
Panicula valida, 30 cm. longa .... *E. rigida.*
Panicula minor, 9–10 cm. longa .... *E. tristachya.*
Panicula 2 cm. longa, spicis minoribus .... *E. Meyeri.*
Panicula folia superans, ramis gracilibus.
Panicula 11 cm. longa .... *E. juliformis.*
Panicula 70 cm. longa, pendula .... *E. flagellaris.*
Spicæ plures in capitula congestis erectis.
Capitula 3, pauciflora, subcylindrica .... *E. platylopha.*
Capitula 7, multiflora .... *E. multispicata.*
Capitula 6, obovata .... *E. Klossii.*
Capitula 3, subglobosa, flores majores .... *E. sericea.*

To this genus probably also belong *Alpinia* (§ *Oligocincinnus*) *strobilacea*, K. Schum.; *A. chaunocolea*, K. Schum.; *A. sericiflora*, K. Schum.; *A. Dekockii*, Val.; *A. gracillima*, Val.; *A. menostachys*, Val., and *leptostachya*, Val., which Valeton refers to the affinity of *Kolowratia*. I have seen none of these species.

The genus *Alpinia*, as described by K. Schumann in Engler's 'Pflanzenreich,' II. 20, contains a somewhat heterogeneous collection of upwards of 140 species, arranged in six sections. Some of these sections appear to me to be sufficiently distinct to warrant their being raised to genera. In the present instance, I propose to separate a group which appears to be quite peculiar to New Guinea and the surrounding islands, and which is mainly characterised by the large broad and thick crest of the anther, which is also very hairy. In these species—or in many of them, at least—the development of the flower-spike is peculiar. The inflorescence having developed to its full, or nearly full, length, produces spikes containing one or two flowers enclosed in long stiff bracts. These spikes then elongate as more and more flowers are produced, developing at last into a long cylindric spike covered with short imbricate hard bracts, so that, unless the flowers of the species are carefully compared, or a good set of the plant in different stages procured, it would be easy to mistake a specimen commencing to flower for a species distinct from the fully developed one.

ERIOLOPHA RIGIDA, Ridl., sp. nov.

Caulis validus, 1 cm. crassus. *Folia* coriacea, glabra, elliptica, lanceolata, basi

cuneata, subpetiolata, 40 cm. longa, 9 cm. lata, petiolo alato 8 mm. longo; ligula lata, oblonga, truncata, integra, 5 mm. longa; vagina cancellata. *Panicula* valida, 3 cm. longa, rhachi angulata costata pubescente, internodiis 2–4 cm. longis. *Spicæ* sessiles, patentes, infima solummodo pedunculata, pedunculo 1 cm. longo. *Flores* 2. *Bractea* exterior cylindrica, tubulosa, 3 cm. longa, 5 mm. lata, ore integro, mucrone parvo in carina orto, uti oris margine pubescente. *Bractea* secunda similis, sed minor. *Pedicellus* linearis, complanatus, molliter pubescens, 2 cm. longus. *Ovarium* oblongum, sericeo-pubescens. *Calyx* 2 cm. longus, tubulosus, coriaceus, in uno latere fissus, dentibus 3 linearibus sericeis 3 mm. longis. *Corollæ* tubus quam calyx multo brevior, lobus posticus carnosus, linearis, recurvus, 1·2 cm. longus; lobi laterales 6 mm. longi, lineari-oblongi, plani. *Labellum* oblongum, latum, obtusum, stamini æquilongum et quam tubus calycis brevius, extus et intus hirtum. *Anthera* loculis angustis brevibus, appendice connectivi magno oblongo apice rotundato undique dense hirto. *Stylus* crassiusculus, stigmate magno triangulari obovato hirto.

Camp VI *a*, 3100 ft.

Very distinct in its large rigid leaves, stout rhachis, and tubular bracts. The spike examined contained two flowers only; it is possible, however, that at a later stage it may elongate and develop more, as in the other species.

ERIOLOPHA TRISTACHYA, Ridl., sp. nov.

Caulis subgracilis, 5 mm. crassus. *Folia* lanceolata, acuminata, cuspidata, basi cuneata, glabra, 25 cm. longa, 4·5 cm. lata, ligula brevissima ovata nigrescente, vagina cancellata. *Inflorescentia* 9–10 cm. longa, spicis 3 cylindricis, 6 cm. longis, 5 mm. crassis, rhachi angulata glabra. *Bracteæ* coriaceæ, costatæ, ovatæ, 5–10 mm. longæ, apice rotundatæ mucrone brevi pilis albis munito e carina orto. *Pedicelli* 3 mm. longi, sericei. *Ovarium* obconicum, glabrum, 5 mm. longum. *Calyx* cylindricus, 1·2 cm. longus, dentibus 2 mm. longis linearibus acutis. *Corollæ* tubus æquilongus; lobi æquales lanceolati, carnosi, cucullati, 1·4 cm. longi, 3 mm. lati. *Labellum* oblongum, cymbiforme, carnosum, obtusum, 5 mm. longum. *Stamen* longius, anthera oblonga dorso pubescente, connectivi appendice oblongo ovato apice rotundato integro pubescente, filamento tubo corollæ æquilongo. *Capsula* globosa, lævis, 1 cm. longa.

Camp VI *a*, 3100 ft.

The spikes appear to elongate slowly with the development of the flowers.

ERIOLOPHA MEYERI, Ridl., sp. nov.

Caules 5 mm. crassi. *Folia* lanceolata, minute cuspidata, basi cuneata, 15 cm. longa, 2·3 cm. lata, ligula magna oblonga apice rotundata glabra costata 1 cm. longa, vaginis costatis nec cancellatis. *Panicula* brevis, ultra 2 cm. longa, spicis 4 parvis 1 cm. longis subcylindricis. *Bracteæ* ovatæ vel lanceolatæ, 2 mm. longæ. *Bracteæ* florales oblongæ, breviter mucronatæ, costatæ, 5 mm. longæ. *Ovarium* obconicum, oblongum, hirtum, 2 mm. longum. *Calyx* tubus cylindricus, 1 cm.

longus, glaber, costatus, dentibus 3 ovatis mucronatis 2 mm. longis. *Corollæ* tubus calyci æquilongus, lobo postico oblongo obtuso glabro angusto 2 cm. longo 1 cm. lato, cæteris minoribus 1·5 cm. longis. *Labellum* ovatum, concavum, carnosum, pubescens, apice angustiore oblongo lineari truncato basi costis 2 elevatis instructo. *Anthera* oblonga, appendice oblongo longiore quam latiore pubescente.

Geelvink Bay, 2200 ft., May 1873. A. B. Meyer no. 10 (in Herb. Kew.).

This species is distinct in its short simple inflorescence with small spikes, large ligule, and ovate lip ending in a linear oblong limb with two raised lines in the concave portion. The lip is two-thirds of the length of the shorter corolla-lobes.

ERIOLOPHA JULIFORMIS, Ridl., sp. nov.

Caules graciles, 4 mm. crassi. *Folia* tenuiter coriacea, lanceolata, acuminata, sessilia, basi breviter angustata, 14 cm. longa, 3 cm. lata, præter basin costæ et vaginas pubescentes glabra; ligula rotundata brevi retusa 2 mm. longa, vagina costata haud cancellata. *Inflorescentia* 11 cm. longa, spicis 3–4 cylindricis remotis, rhachi gracili angustata pubescente flexuosa. *Bracteæ* ad basin spicarum sitæ lanceolatæ, acuminatæ, cuspidatæ, papyraceæ, pubescentes, ima 4 cm. longa, 8 mm. lata, superiores minores. *Bracteæ florales* breves, ovatæ, imbricatæ, carinatæ, mucronulatæ, sericeæ, 4–5 mm. longæ. *Pedicelli* sericei, apice longius ciliati. *Ovarium* obovoideum, sericeum, 4 mm. longum. *Calyx* brevis, tubulosus, 1 cm. longus, minute pubescens, lobis lanceolatis acuminatis marginibus pubescentibus, dimidio tubi fere æqualibus. *Corolla* tubo calycem breviter superante, lobis oblongis obtusis glabris, postico cucullato, cæteris apice planis 1 mm. longis 4 mm. latis. *Labellum* ovato-oblongum, obtusum, corollæ fere æquilongum. *Anthera* linearis, loculis angustis, appendice oblongo obtuso apice retuso hirto, loculi dimidio fere æquali. *Stylus* crassiusculus, stigmate obconico, apice recurvo hirto.

Camp VI *a*, and between Camps VII and VIII, 3100 ft.

Readily distinguished by its slender rhachis with catkin-like spikes and small flowers.

ERIOLOPHA FLAGELLARIS, Ridl., in Hook. Ic. Pl. t. 3067 (1916).

Caulis subgracilis, 4 mm. crassus. *Folia* ovata, lanceolata, cuspidata, basi rotundata, coriacea, glabra, 18 cm. longa, 6 cm. lata, ligula brevi rotundata integra, vagina costata haud cancellata. *Inflorescentia* rhachi elongata gracili 70 cm. longa angulata pubescente, internodiis 9 cm. longis $1\frac{1}{2}$ mm. crassis, spicis pluribus cylindricis 10–11 cm. longis 5 mm. crassis. *Bracteæ* basales angustæ, lineares, acuminatæ, papyraceæ, 11 cm. longæ, 7 mm. latæ. *Bracteæ florales* ovatæ, imbricatæ, carinatæ, sericeæ, 5 mm. longæ. *Ovarium* obovatum. *Calyx* tubulosus, costatus, sericeus, 1·5 cm. longus, lobis lanceolatis acuminatis. *Corolla* tubo calyci æquilongo pubescente, lobis lanceolatis acuminatis, basi latioribus 1 cm. longis. *Labellum* oblongum, obtusum, apice rotundatum, undulatum, 6 mm. longum. *Anthera*

linearis, dorso pubescens, appendice oblongo truncato integro hirto. *Stylus* æquilongus, stigmate obcuneato triangulari hirto. *Capsula* globosa, lævis, pedicello sericeo 5 mm. longo.

Camps VI *b* and VI *c*, and VIII to IX, 3900 to 5500 ft.

Allied to the preceding species, but with a very remarkable long, slender, flexuous and apparently pendulous inflorescence. The calyx and bracts appear to have been pink.

ERIOLOPHA PLATYLOPHA, Ridl., sp. nov.

Caulis 5 mm. crassus. *Folia* late lanceolata, acuta, basi angustata obtusa, tenuiter coriacea, glabra, 12–17 cm. longa, 2·3 ad 4·7 cm. lata, ligula brevi oblonga obtusa hirta 5 mm. longa, vaginis cancellatis marginibus parce hirtis. *Inflorescentia* erecta, 8 cm. longa, spicis 3 paucifloris subcylindricis erectis sessilibus appressis, rhachi crassiuscula sericea. *Bracteæ* oblongæ, abrupte cuspidatæ, 5·5 cm. longæ, 1 cm. latæ, cuspide 5 mm. longo, glabræ in marginibus sericeæ, superiores minores. *Flores* 2·5 cm. longæ. *Ovarium* oblongum, 4 mm. longum, sericeum. *Calyx* cylindricus, costatus, superne paullo dilatatus, præter margine loborum sericeo glaber, 1·5 cm. longus, lobis linearibus acuminatis, 5 mm. longis. *Corolla* tubo calyci æquilongo, lobis oblongis cucullatis obtusis extus sericeis 8 mm. longis. *Labellum* brevius, oblongum, obtusum, integrum, extus hirtum, intus glabrum, minute pustulosum, 5 mm. longum. *Stamen* æquilongum. *Anthera* lineari-oblonga, dorso hirta, appendice late oblongo truncato retuso latiore quam longo hirsuto. *Stylus* appendicem superans, clavatum, hirtum.

Camp VI *c*, 5500 ft.

Distinct in its scanty few-flowered erect spikes and the crest of the anther, which is broader than long, very hairy and retuse.

ERIOLOPHA MULTISPICA, Ridl., sp. nov.

Caulis validus. *Folia* coriacea, late lanceolata, acuta, basi lato rotundata costa crassa in dorso pubescente, aliter glabra, 22 cm. longa, 6·5 cm. lata, ligula brevi ovata 2 mm. longa, vagina cancellata. *Inflorescentia* terminalis validus, sessilis, 10 cm. longus, rhachi sericea, spicis 7 crassis erectis sessilibus 2 cm. longis obconicis. *Bracteæ* latæ, lanceolatæ, ovatæ, brunneo-lanuginosæ. *Ovarium* obovoideum, lanuginosum. *Calyx* late tubulosus, costatus, parce hirtus, versus apicem dilatatus, 1 cm. longus, lobis 3 lanceolatis acutis marginibus hirtis. *Corolla* tubo breviore, lobis late ovatis lanceolatis cucullatis pubescentibus 5 mm. longis. *Labellum* late obovatum, integrum, carnosum, quam petala brevius, versus apicem obtusum, paullo dilatatum. *Anthera* oblonga, appendice magno carnoso obovato truncato hirto. *Stylus* antheram superans, stigmate magno clavato.

Camps VI *b* and VI *c*, 3900 and 5500 ft.

ERIOLOPHA KLOSSII, Ridl., sp. nov.

Caulis gracilis. *Folia* anguste lanceolata, acuminata, basi angustata, glabra costa pubescente excepta, sessilia, 28–30 cm. longa, 4 cm. lata, ligula coriacea oblonga

rotundata retusa hirta, vagina cancellata. *Panicula* brevis, 4 cm. longa, compacta, pedunculo 6 cm. longo, capitulis 6 dense aggregatis, rachi valida pubescente. *Capitula* subcylindrica, multiflora, 2 cm. longa. *Bracteæ* tenuiter coriaceæ, lanceolatæ, oblongæ, acutæ, hirtæ, in marginibus sericeæ, ima 3 cm. longa, 1 cm. lata. *Ovarium* breve, hirtum. *Calyx* 2 cm. longa, cylindrica, lobis 3 æqualibus subulatis 5 mm. longis. *Corolla* tubo calyci æquilongo, lobis oblongis carnosis, postico longiore 1 cm. longo, dorso hirto apice obtuso carnoso et torto (in sicca), cæteris brevioribus subsimilibus. *Labellum* lineare, carnosum, breve truncatum, extus pubescens. *Stamen* æquilongum, hirtissimum, appendice brevi ovato obtuso hirto.

Camps III and I to III, 500 to 2500 ft.

"Carmine" or coral-red.

Differs from the other species in the short, compact, more glabrous capitulum, long calyx-lobes, and smaller appendage to the stamen.

Eriolopha seticalyx, Ridl., sp. nov.

Caulis vix crassus. *Folia* lanceolata, acuminata, cuspidata, basi paullo angustata, obtusa, superne glabra, subtus minute velutina, 26–30 cm. longa, 2·5 cm. lata, costa valida, ligula brevi 2 mm. longa ovata obtusa pubscente, vagina tenuiter costata pubescente. *Inflorescentia* capitata, sessilis ex uno vel pluribus capitulis lanceolatis 3–4 cm. longis composita, bracteis oblongis cuspidatis 5 cm. longis 1–2 cm. latis pubescentibus marginibus apicis ciliatis. *Pedicelli* breves, glabri, 5 mm. longi. *Calyx* clavatus, basi angustus, teres, superne fusiformis, in uno latere fissus, 2·7 cm. longus, glaber, lobis setiformibus 7 mm. longis pubescentibus. *Corolla* et labellum desunt. *Stamen* filamento 2·5 cm. longo lineari canaliculato. *Anthera* 2 mm. longa, appendiculata. *Capsula* basi lata, obtusa, cylindro-conica, glabra, acuminata, 3 cm. longa, 1 cm. crassa, calyce elongato basi terete 3 cm. longo, limbo spathaceo 2 cm. longo coronata. *Semina* ad 30, cuneata, apice lata, brevia, 5 mm. lata, arillo tenui parvo.

Canoe Camp. "Greenish white."

Apparently allied to *E. Klossii*, but differing especially in the longer pale bracts, peculiar calyx with setiform points, and long stamen. The only specimen is in bad condition, having finished flowering, and the perianth having mostly disappeared. The fruit with its long calyx beak is very peculiar. The leaves are often so broad and rounded at the base (2 cm. across) that they are almost cordate. It seems to be allied to Schumann's section *Medusula* of *Alpinia*.

Eriolopha sericea, Ridl., sp. nov.

Caulis validus. *Folia* tenuiter coriacea, elliptica, abrupte cuspidata, basi rotundata, 25 cm. longa, 7 cm. lata, marginibus et costa minute sericeis, ligula brevissima retusa hirta, vagina cancellata hirta. *Inflorescentia* 7 cm. longa, rhachi crassa pubescente, capitulis 2–3 aggregatis 4 cm. longis oblongo-globosis sessilibus approximatis. *Bracteæ* inferiores lineari-oblongæ, abrupte cuspidatæ, 7 cm.

longæ, 1·2 cm. latæ, cuspide 1–1·5 cm. longo, sericeo-hirtæ (præsertim in cuspide). *Bracteæ florales* ovatæ, acutæ, sericeæ, 2 cm. longæ, 1·5 cm. latæ. *Ovarium* globosum, sericeum, 8 mm. longum. *Calyx* late tubulosus, sericeus, 2 cm. longus, in uno latere fissus, lobis linearibus acuminatis 5 mm. longis. *Corolla* tubo calyci æquali, lobis coriaceis 1·4 cm. longis 5 mm. latis basi lanceolatis cucullatis subobtusis sericeis. *Labellum* coriaceum, extus sericeum, intus glabrum, oblongum, acuminatum, acutum, linea mediana incrassata. *Stamen* breve, oblongum, dorso sericeum, appendice sericeo late oblongo truncato. *Stylus* antheram superans, stigmate clavato hirto.

Camp VI *a*, 3100 ft.

This has the largest and most silky flowers of the genus, and is characterised, too, by the thick compact heads of flowers subtended by long, cuspidate bracts longer than the spikes.

RIEDELIA (§ RACEMOSÆ) PURPURATA, Ridl., sp. nov.

Caules graciles, arundinacei. *Folia* lanceolata, longe acuminata, acuta, glabra, 16 cm. longa, 1·9 cm. lata, nervis tenuibus lineis transversis petiolis 5 mm. longis costatis, ligula ovata obtusa 2 mm. longa. *Racemus* 6 cm. longus, pedunculo 1 cm. longo, pedicellis 2 mm. longis. *Ovarium* angustum, infundibuliforme. *Calyx* basi pallidus, apice atro-purpureo-roseus, tubo cylindrico ore integro nec fisso marginibus undulatis vel breviter 3-lobo, lobis triangulari-ovatis. *Corolla* tubo basi gracili versus apicem gradatim angustato 3 cm. longo, lobis lanceolatis, postico cucullato, cæteris acutis apice incrassatis purpureis ad margines pallidioribus 1 cm. longis. *Labellum* lobis oblique triangularibus apice haud prolongatis purpureis. *Stamen* labello longius; anthera brevis, oblonga, basi bifida, apice longiuscula marginibus incrassatis, appendice nullo. *Stylus* longior, stigmate obovoideo.

Camp VI *a*, 3100 ft., and Camp VI *c*, 5500 ft.

This elegant species is very distinct in its purple colouring, the tube of the calyx and the corolla being apparently white, or pale rose with dark purple tips, as also in its slender stems, the entire, or almost entire, mouth of the calyx-tube, and the lobe of the lips having no limb or prolonged points.

RIEDELIA (§ RACEMOSÆ) HIRTELLA, Ridl., sp. nov.

Caules graciles. *Folia* lanceolata, acuminata, basi breviter cuneata, 9·5 cm. longa, 1·5 cm. lata, petiolo gracili canaliculato 6 mm. longo, ligula brevi rotundata hirta 1 mm. longa. *Racemus* 6 cm. longus, basi (1 cm.) nudus. *Flores* copiosi, congesti, deflexi, rhachi dense velutina hirta. *Pedicelli* cum ovariis 3 mm. longi, velutini. *Calyx* tubo cylindrico 1·5 cm. longo pubescente uno latere fisso, lobis brevissimis rotundatis. *Corolla* tubo calyci paullo longiore, lobo postico oblongo corniculo magno ovoideo conico cucullato pubescente 8 mm. longo, lobis cæteris brevioribus oblongis obtusis. *Labellum* quam corolla brevius, lobis anguste lanceo-

latis obtusis pubescentibus. *Stamen* anthera lineari-oblonga, apice retusum, appendice nullo.

Locality not stated.

This species resembles *R. purpurata*, Ridl., but is pubescent on the rhachis, pedicels, and flowers. The corolla-tube also is shorter and the lobes of the lip narrower.

RIEDELIA (§ RACEMOSÆ) LIGULATA, Ridl., sp. nov.

Herba 40 cm. alta, rhizomate lignoso, caulibus ad basin vaginatis gracilibus. *Folia* tenuiter coriacea, lanceolata, acuminata, basi angustata, purpurascentia, 11 cm. longa, 3 cm. lata, glabra, petiolo nullo, ligula 1·3 cm. longa oblonga ovata obtusa glabra, vagina dilata. *Racemus* 6-7 cm. longus, pedunculo 6 cm. longo validulo. *Flores* congesti, pedicellis 1 mm. longis. *Ovarium* cylindricum, 2 mm. longum. *Calyx* cylindricus, paullo superne dilatatus, glaber, 2 cm. longus, margine truncato integro haud fisso. *Corolla* tubo superne dilatato 2·5 cm. longo, lobo postico oblongo brevi lato 5 mm. longo apice obtuso crasse et breviter corniculato, lobis cæteris lanceolatis æquilongis. *Labellum* quam petala longius, lobis ovatis obtusis stamen superantibus purpureis. *Stamen* anthera oblonga apicibus divaricatis, appendice ovato vel obovato rotundato. *Stylus* gracilis, stigmate obconico. *Capsula* globosa, obscure triloba. *Semina* elongata, cylindrica, brunnea, 1 mm. longa, arillo tenui circumdata.

Camps I, 500 ft.; III, at 2500 ft., and VI *a*, at 3100 ft.

Remarkable for its large ligule, short corolla-lobes, the entire calyx, and the distinct long crest to the anther.

RIEDELIA KLOSSII, Ridl., sp. nov.

Caules graciles. *Folia* lanceolata, longe acuminata, basi cuneata, ad marginem et carinas hirta, 10–15 cm. longa, 2·5–3 cm. lata, petiolo hirto 1 cm. longo, ligula ovata rotundata hirta 1 mm. longa, vaginis hirtis. *Racemus* 3–4 cm. longus, pedunculo 1 cm. longo. *Flores* circiter 14, dissiti, pedicellis 1 mm. longis. *Ovarium* turbinatum, 5 mm. longum, glabrum. *Calyx* tubulosus, 2 cm. longus, vix superne dilatatus, lobis 3 brevibus ovatis setis terminalibus brevibus marginibus albo-ciliatis, nervis 3 in setas procurrentibus elevatis undulatis. *Corolla* tubo 2·5 cm. longo, lobis 1 cm. longis, postico late oblongo obtuso brevissime cucullato apice pubescente, cæteris linearibus oblongis angustioribus. *Labellum* lobis basi latis ovatis acuminatis obtusis 5 mm. longis. *Stamen* labello longius. *Anthera* oblonga, apice retusa, appendice nullo, filamento lato plano. *Stigma* obconicum.

Camp VI *b*, 3900 ft.

A distinct plant of this section, characterised by its short flowers, the short ovate lobes of the lip, and the calyx with its three slender wavy raised lines running to each of the lobes, and ending in a setiform process.

Riedelia (§ Racemosæ) bicuspis, Ridl., sp. nov.

Caules validuli. *Folia* lanceolata, acuminata, glabra, 30 cm. longa, 8·4 cm. lata, basi angustata, apice acuminata cuspidata, petiolo canaliculato 15 mm. longo, ligula oblongo-ovata obtusa 8 mm. longa. *Racemus* 10 cm. longus, pedunculo valido costato 3–4 cm. longo. *Flores* copiosi, pedicellis 3 mm. longis vel brevioribus. *Ovarium* pyriforme, 2 mm. longum. *Calyx* tubulosus, bicarinatus, cum lobis 3·5 cm. longus, fissus, lobis 2 cirrhiferis 5 mm. longis, medio breviore ovato vel brevius cirrhifero. *Corolla* tubo superne dilatato 3 cm. longo, lobis oblongis obtusis 3 cm. longis 3 mm. latis, postico æquilongo sed latiore. *Labellum* quam stamen brevius, bilobum, lobis ovatis falcatis inæquilateralibus obtuse acuminatis ad marginem interiorem et apicem incrassatis minute pustulosis. *Filamentum* lineare, longum, anthera latius. *Anthera* oblonga, marginibus elevatis, basi bifida, apicibus subacutis, appendice brevi ovato rotundato. *Stylus* 3 cm. longus, stigmate obovoideo capitato. *Stylodia* oblonga, truncata, carnosa, purpurea. *Capsula* oblongo-ovoidea, stylodiis erectis corniformibus 2 mm. longis, coronata, sanguinea, 1·5 cm. longa, 8 cm. crassa. *Semina* aciniformia, flavescentia, punctulata, 2 mm. longa, arillo copioso flavo.

Camp VI *b*, 3900 ft.

Riedelia (§ Racemosæ) triciliata, Ridl., sp. nov.

Folia lanceolata, acuminata, basi angustata, glabra, 16–19 cm. longa, 3–3·5 cm. lata, petiolo 1 cm. longo, ligula oblonga apice rotundata hirta 8 mm. longa. *Racemus* erectus, laxus, pedunculo 2 cm. longo. *Flores* dissiti, circiter 40. *Pedicelli* 5 mm. longi. *Ovarium* infundibuliforme, 2 mm. longum. *Calycis* tubus cylindricus, bicarinatus, 1·2 cm. longus, lobis 3 brevibus ovatis rotundatis hirtis, carinis in cuspide elongatos 7 mm. longos (medio breviore) prolongatis. *Corolla* tubo superne dilatato cum lobis 2·5 cm. longo, lobo postico cucullato corniculato obtuso apice pubescente, cæteris linearibus oblongis apicibus pubescentibus. *Labellum* brevius, bifidum, lobis semiobovatis abrupte et breviter obtuse cuspidatis, marginibus et apice incrassatis. *Stamen* longius, filamento lineari lato. *Anthera* oblonga, marginibus crassis, appendice nullo, loculorum basibus angustatis convergentibus acutis, stigma capitatum.

Camp VI *c*, 5500 ft.

Allied to *R. bicuspis*, Ridl., but with smaller flowers.

Riedelia (§ Paniculatæ) aurantiaca, Ridl., sp. nov.

Caulis modice crassus. *Folia* subtenuia, elongata, lanceolata, acuminata, basi inæquilateralia, rotundata, 40–50 cm. longa, 4–5 cm. lata, petiolo 1·5 cm. longo, ligula brevissima vix 1 mm. longa rotundata. *Panicula* 15 cm. longa, ramis tribus 4–5 cm. longis, pedunculo 2 cm. longo. *Flores* dissiti, pedicellis 2 mm. longis. *Calyx* 2 cm. longus, tubuloso-cylindricus, obscure trilobus, ad marginem pubescens, breviter in uno latere fissus. *Corolla* tubo calyci subæquali, lobo postico 1·5 cm. longo lanceolato acuto cucullato apice pubescente, lobis lateralibus lanceolatis acutis ad

margines pubescentibus. *Labellum* bifidum, quam stamen brevius, basi lato rotundato apice abrupte angustato lineari obtuso rotundato. *Stamen* anthera lanceolata angusta marginibus paullo incrassatis, appendice brevissimo rotundato antheram vix superante. *Panicula* fructifera 30 cm. longa, ramis 4, 14 cm. longis, pedicellis 5 mm. longis. *Capsula* globosa, oblonga, 1 cm. longa, in valvas 3 fissa. *Semina* irregularia, atra, semiovoidea, angustata, rotundata, faciebus interioribus planis angulatis; arillus brevior, lobis 5–6 truncatis.

Canoe Camp and Camps I to III, 150 to 2500 ft.

Flowers orange-red.

Allied to *R. macrantha,* Schum., but with blunt round-tipped linear lobes to the lip.

RIEDELIA (§ PANICULATÆ) FERRUGINEA, Ridl., sp. nov.

Folia angusta, lanceolata, acuminata, tenuia, coriacea, siccando grisea, glabra, ad basin angustata, 45 cm. longa, 3·5–4 cm. lata, petiolo ad basin alato 5 cm. longo, ligula 5 mm. longa oblonga truncata pubescente, vagina costata. *Panicula* 20 cm. longa vel longior, ramis 3 vel pluribus remotis ferrugineis tomentosis, pedunculo 15 cm. longo, ramis 7 cm. longis. *Flores* dissiti, pedicellis 3 mm. longis. *Ovarium* clavatum, 2 mm. longum. *Calyx* tubo cylindrico ferrugineo 3–4 mm. longo in uno latere breviter et late emarginato, lobis 2 brevibus ovatis 1 mm. longis. *Corollæ* tubus calyci æquilongus, lobis oblongis linearibus 1·2 cm. longis, postico corniculato hirto. *Labellum* ad basin bifidum, lobis linearibus acuminatis corollæ lobos æquantibus, linea in medio elevata. *Stamen* æquilongum, filamento lineari carnoso, anthera angusta lineari, apicibus loculorum parallelis connectivo marginatis, appendice nullo. *Stylus* gracillimus, stigmate parvo glabro.

Camp VI *a*, 3100 ft.

This species is allied to *R. Albertisii*, K. Schum., but differs in the petiole of the leaves, the shorter pedicels of the flowers, and the narrow lobes of the lip, which resembles in its form that of *R. curviflora*, Oliver.

RIEDELIA PULCHERRIMA, Ridl., sp. nov.

Folia elongata, lanceolata, basi longe acuminata, apice acuminata, 60 cm. longa, 7 cm. lata, costa valida costata glabra, petiolo 4 cm. longo alato, ligula brevi oblonga truncata lanuginosa. *Panicula* ferruginea, velutina (corollis exceptis), pedunculo 18 cm. longo valido, ramis 8 cm. vel brevioribus remotis lateralibus 3. *Bracteæ* ovato-lanceolatæ, acuminatæ, tenues, papyraceæ, caducæ, 15 cm. longæ, 2 cm. latæ. *Flores* copiosi, pedicellis 2 mm. longis. *Ovarium* obconicum, pedicello æquilongum. *Calyx* 2 cm. longus, cylindricus, lobis brevissimis rotundatis obtusis. *Corollæ* tubus subæquilongus, lobis inæqualibus, postico lanceolato cucullato et corniculato 1 cm. longo 4 mm. lato in dorso et margine sericeo, lateralibus 7 mm. longis haud cucullatis. *Labellum* quam stamen brevius, 6 mm. longum, ad basin bifidum, lobis oblongis lanceolatis obtusis. *Filamentum* brevissimum. *Anthera* oblonga, linearis, appendice nullo glabro. *Stylus* æquilongus, stigmate parvo.

Camp III, 2500 ft.

"Secondary stems crimson, under surface of leaf washed purple, stem dull crimson brown. Flowers yolk-of-egg colour."

The only species in which I have seen the large bracts of the branches of the inflorescence, though they are probably present at one time in all species.

The plant is allied to *R. macrantha*, Valet., but differs in its woolly panicle and its oblong, not semi-oblong, blunt lobes to the lip.

RIEDELIA (§ PANICULATÆ) WOLLASTONII, Ridl., sp. nov.

Folia tenuia, late lanceolata, in petiolo decurrentia, 30 cm. longa, 6·5 cm. lata, costa pubescente, nervis primarii 14 distinctis, petiolo 7 mm. longo canaliculato, ligula brevi hirta oblonga truncata, vagina in parte superiore hirta. *Racemus* 10–15 cm. longus, laxiflorus, interdum ramo uno addito, floribus paucis, pedunculo 4 cm. longo. *Pedicelli* 2 mm. longi. *Ovarium* 3 mm. longum, parvum, ovoideum. *Calyx* 2 cm. longus, cylindricus, limbo lanceolato lato, dentibus 3 minimis, 6-nervius, haud carinatus. *Corollæ* tubus 3 cm. longus, calycem superans, lobis anguste lanceolatis acutis 2 cm. longis, postico paullo cucullato. *Labellum* stamen superans, lobis angustatis basi semiovatis apice linearibus obtusis. *Anthera* lineari-oblonga, basi bifida, appendice parvo ovato triangulari.

Camps VI *b* to VIII, 3900 to 4900 ft.

A very distinct species in the hairy ligule, the narrow-lobed lip, which is longer than the stamen, and the form of the calyx.

RIEDELIA (§ PANICULATÆ) LONGISEPALA, Ridl., sp. nov.

Folia elliptica, lanceolata, acuminata, acuta, basi longe angustata, tenuiter coriacea, glabra, 40 cm. longa, 7 cm. lata. *Panicula* (juvenilis) 16 cm. longa, ramis 3 remotis patentibus. *Flores* plurimi ad apices ramorum condensati, racemis 2–3 cm. longis, pedunculis 1–2 cm. longis, pedicellis 1 mm. longis. *Ovarium* obconicum, 1 mm. longum, glabrum. *Calyx* (in alabastro) 1 cm. longus, tubo brevi cylindrico, lobis 3 linearibus acuminatis æquilongis. *Corolla* tubo brevi, lobo postico lanceolato longe corniculato, cæteris lanceolatis multo minoribus. *Labellum* stamen superans, bifidum, lobis oblongis rotundatis. *Anthera* lineari-oblonga, glabra, appendice nullo. *Stigma* obconicum.

Camp VI *b*, 3900 ft.

The flowers are in young bud, so that it is not possible to give accurate measurements of the corolla or lip. The solitary leaf is apparently petiolate, but the blade is decurrent nearly or quite to the base. The species is very distinct among the group of *Paniculatæ*, in the small flowers which are crowded in dense racemes at the ends of the branches and in the long lobes of the corolla. It is evidently very near *R. paniculata*, but the flowers are much larger, even in bud, and the ovary is glabrous.

MARANTACEÆ.

(By H. N. Ridley.)

Donax cannæformis, K. Schum. in Engl. Bot. Jahrb. xv. (1892) 440.

Canoe Camp, 150 ft.

Flowers white, fruit whitish yellow.

Distrib. Eastern Malaya to Polynesia.

Cominsia Guppyi, Hemsl. in Ann. Bot. v. (1891) 508, t. 1. *Phrynium giganteum*, Scheff. in Ann. Gard. Buitenz. i. 58. *P. heliconioides*, Lauterb & K. Schum. Fl. Deutsch. Schutzg. Südsee, 238. *Cominsia gigantea*, K. Schum. in Engl. Pflanzenreich, H. 11 (1902) p. 58.

Camp I, 500 ft.

Flowers white, fruit dull waxy green.

Distrib. Halmahera, New Guinea, Bismarck Islands, and Solomon Islands.

Phrynium sp.

Camp VI *a*, 3100 ft.

This is possibly *P. pedunculatum*, Warb. in Engl. Pflanzenreich, *l. c.* p. 55. Unfortunately there are no flowers in the specimen. The inflorescence is a simple raceme, with thin-textured bracts.

MUSACEÆ.

(By H. N. Ridley.)

Heliconia Micholitzii, Ridl. in Agric. Bull. Straits Settl. xii. (1908) 132.

Canoe Camp, 150 ft.

Distrib. Recorded originally from New Ireland.

HYPOXIDACEÆ.

(By H. N. Ridley.)

Curculigo latifolia, Dryand. in Aiton, Hort. Kew. Ed. 2, ii. 253.

Canoe Camp, about 150 ft., and Camp VI *a*, 3100 ft.

Distrib. Burmah and Malaya.

DIOSCOREACEÆ.

(By H. N. Ridley.)

Dioscorea papuana, Ridl., sp. nov.

Caules tenues, teretes. *Folia* anguste lanceolata, acuminata, cordata, lobis rotundatis vel basi rotundata, in utraque pagina lucida, 6–9 cm. longa, 1–2 cm. lata, petiolis gracilibus 2–2½ cm. longis. *Spicæ* graciles, 5–6·5 cm. longæ, 4 in pedunculo 1 mm. longo. *Flores* remoti, 1 mm. longi, alabastris oblongis. *Bracteæ* ovatæ, cuspidatæ. *Sepala* late oblonga. *Petala* minora, lanceolata, obtusa. *Stamina* 6, brevissima, antheris oblongis. *Pistillodia* minuta. *Capsula* oblonga, 2 cm. longa, 1·5 cm. lata, alis æqualibus rotundatis.

Camps I to III, 500 to 2500 ft. (November, in fruit); VI *a*, 3100 ft. (January, in flower).

Allied to *D. glabra*, Roxb., but differing in the leaves being brown and polished on both sides when dry, not glaucescent, in the longer spikes of larger flowers, oblong in bud, and in drying brown, not black.

CORSIACEÆ.

(By H. N. Ridley.)

Corsia ornata, Becc. Malesia, i. 238, tab. 9.

Camp III, 2500 ft., and Camp VI *c*, 5500 ft.

"Bright paper-yellow, streaked with dull crimson."

Distrib. Endemic in New Guinea.

BURMANNIACEÆ.

(By H. N. Ridley.)

Burmannia disticha, Linn. Sp. Pl. 287.

Camps VI *b*, 3900 ft.; VI *c*, 5500 ft.; and VII to VIII, 3600 to 4900 ft.

Distrib. India, Ceylon, Malaya, China, and Australia.

Burmannia longifolia, Becc. Malesia, i. 244.

Camps III, 2500 ft.; VI *c*, 5500 ft.

Distrib. Malay Peninsula and Islands.

Burmannia micropetala, Ridl., sp. nov.

Herba saprophytica, gracilis, 11–12 mm. alta, squamis paucis lanceolatis acuminatis 4 mm. longis dissitis. *Flores* 8–10 ad apicem pseudo-umbellati, congesti. *Bracteæ* lanceolatæ vel lineari-acuminatæ, inferiores latiores, lanceolatæ, 2 mm. longæ. *Pedicelli* crassi, 5 mm. longi. *Perianthium* 5 mm. longum, exalatum, tubo obscure angulato subcylindrico. *Sepala* ovata, acuta, 1 mm. longa, carnosa, papillosa. *Petala* multo minora, oblonga, obtusa, carnosa. *Stamina* connectivo ovato triangulari-obtuso, antheris parvis ellipticis. *Stylus* cylindricus, validulus; stigmata brevia, lata, decurva.

Camp VI *a*, 3100 ft.

Closely resembling *B. sphagnoides*, Becc., of Borneo, in the form of the flower, but the connective of the stamens is broader and entire, not notched above, as in that species. The leaves are also reduced to two or three inconspicuous lanceolate acuminate scales.

Gymnosiphon papuanum, Becc. Malesia, i. 241.

Canoe Camp, at about 150 ft., in dry places; Camp I, 700 ft.

Distrib. Endemic in New Guinea.

LILIACEÆ.

(By H. N. Ridley.)

Smilax leucophylla, Blume, Enum. 18.

Camp VI *b*, 3900 ft.

Distrib. Malaya.

Smilax melanocarpa, Ridl., sp. nov.

Caules inermes, quandrangulares. *Folia* tenuiter coriacea, glabra, concoloria (sicca brunnea), lanceolata, basi lata, rotundata, 16–20 cm. longa, 5·5–9 cm. lata, costa et nervis duobus elevatis, nervo marginali tenuiore, reticulationibus conspicuis laxis, petiolis validis a medio vaginantibus 1½–2 cm. longis. *Bracteæ* ovatæ, acutæ, 1 mm. longæ. *Umbellæ* solitariæ, axillares, pedunculis 3 cm. longis. *Flores* circiter 12, viridi-brunnei, in pedicellis 1 cm. longis. *Alabastra* oblongo-subglobosa, 4 mm. longa. *Sepala* elliptico-ovata, apice rotundata. *Bacca* nigra, magna, globosa, 2 cm. longa, in pedicello 1·5 cm. longo; semina duo, ellipsoidea, obscure triquetra, dorso convexa, utrinque obtusa, 1·2 cm. longa, 6 cm. lata, castanea.

Canoe Camp, 150 ft.; Camps X to XI, 6700 to 8300 ft.

Flowers greenish and brownish red; fruits blackish.

This species is remarkable for its very large fruit, as big as those of *S. megacarpa*, A. DC., from which it differs in the absence of thorns and the different form of the seed.

Smilax australis, R. Br. Prodr. 293.

Camps VIII to IX, 4900 to 5500 ft.

Specimens only in fruit and not quite typical, but probably of this species.

Distrib. Australia and New Guinea.

Cordyline stricta, Endl. in Ann. Wien. Mus. i. (1836) 162.

Utakwa Valley, without precise locality.

Distrib. Australia.

Cordyline terminalis, Kunth, Enum. v. 25.

Camps VI *a*, and VII to VIII, 3100 to 4900 ft.

Distrib. New Guinea to Australia; commonly cultivated elsewhere.

Cordyline racemosa, Ridl., sp. nov.

Caulis gracilis. *Folia* oblanceolata, acuminata, apice setacea, basi angustata, 17 cm. longa, 5 cm. lata, superiora minora, magis ovata, sicca grisea, petiolis vaginantibus 6 cm. longis. *Racemus* simplex, 8–10 cm. longus. *Flores* solitarii, circiter 50 in racemum flavescenti-album collecti, apice purpurei, pedicellis 1 mm. vel brevioribus, articulatis. *Bracteæ* 2, inferior lanceolata, acuminata, 2 mm. longa, superior brevior, ovata, acuminata. *Perianthium* 14 mm. longum; petala et sepala subsimilia, ultra medium connata, lanceolata, obtusa, 2 mm. lata. *Staminum* filamenta, tenuia, lata, complanata, apice obtusa, connectivo paullo excurrente;

antheræ multo breviores, acutæ, angustiores. *Stylus* validulus, cylindricus, stigmatibus brevibus recurvis; ovarium oblongum. *Bacca* subglobosa, lævis, 4 mm. longa. *Semina* 6, atra, polita, 3 mm. longa, angulata, dorso convexa.

Canoe Camp and Camps I to III, 150 to 2500 ft.

This has the habit of *C. Haageana*, C. Koch, but the flowers are larger, the pedicels shorter, and the stamens thin and flat, the filament rounded at the top.

CORDYLINE MINUTIFLORA, Ridl., sp. nov.

Rami graciles, 3 mm. crassi. *Folia* linearia, acuminata, versus basin paullo angustata, 20 cm. longa, 1 cm. lata, costa elevata. *Panicula* gracilis, 15 cm. longa, ramis ad 6 remotis 2·5 ad 3 cm. longis. *Bracteæ* ramorum lanceolatæ, longe acuminatæ, intima 2 cm. longa, pallida. *Flores* pauci, remoti, minuti, 2 mm. longi, in pedicellis brevissimis 1 mm. longis. *Bracteæ* florales lanceolatæ, oblongæ, obtusæ, 5 mm. longæ, pallidæ, persistentes. *Sepala* et petala subæqualia, lineari-oblonga, carinata, carnosa, lata, fere ad basin libera. *Stamina* brevia, antheris latis, filamentis subulatis longiora. *Ovarium* conicum, multi-ovulatum. *Stylus* crassiusculus, breviter obtuse trifidus.

Camp I, 700 ft.

Also obtained at Schumann River (Schlechter, No. 13829).

Very distinct from any species in the remarkably small flowers, but perhaps nearest to *C. neocaledonica*, Linden (*Cohnia neocaledonica*, Baker). The plant collected by Schlechter (No. 13829) is clearly this, though it is only in bud, but the locality and number quoted are given by Lauterbach, in Engl. Bot. Jahrb. l. (1913) p. 297, under *Dracæna angustifolia*, Roxb.

DIANELLA CŒRULEA, Sims, Bot. Mag. t. 506.

Camps I to III, 500 to 2500 ft.; VI *b*, 3900 ft.; and VI *c*, 5500 ft.

Distrib. Australia.

ASTELIA ALPINA, R. Br. Prodr. 291.

Camps XIII to XIV, 10,500 to 12,500 ft.

Distrib. Australia.

COMMELYNACEÆ.

(By H. N. RIDLEY.)

POLLIA THYRSIFLORA, Endl. Gen. 1029.

Canoe Camp and Camp I, 150 to 500 ft.

Flowers white, stamens yellow, fruit steely purple-black and pale pinkish-white.

Distrib. Andaman Islands, Malay Peninsula and Islands.

POLLIA PAPUANA, Ridl., sp. nov.

Planta valida, habitu *P. sorzogonensis*. *Folia* plura, lanceolata, acuminata, apice subabrupte longe acuminata, basi æquilonge acuminata, glabra, 15 cm. longa, 5 cm. lata, nervis 7, petiolis 1 cm. longis, vaginis glabris costatis 2 cm. longis.

Inflorescentia gracilis, pedunculo pubescente, foliis 2 parvis remotis. *Flores* pauci, albi, purpureo-tincti; panicula 6 cm. longa (fructifera ad 4 cm. longa), ramis verticillatis 2–5 mm. longis albo-pubescentibus et ciliatis, pedicellis longiusculis. *Bracteæ* patentes, lineares, oblongæ, obtusæ. *Bracteolæ* ovatæ. *Sepala* ovata, obtusa, 2 mm. longa, glabra. *Petala* lineari-oblonga, 4 mm. longa, glabra. *Stamina* 3, petalis subæquilonga. *Staminodia* 3, breviora, omnia glabra. *Ovarium* globosum. *Stylus* petalis æquilongus. *Bacca* ellipsoidea, cyanea, nitida, 7 mm. longa. *Semina* plura, complanata, tenuia, angulata, brunnea.

Canoe Camp, 150 ft., and Camps VIII to X, 4900 to 6700 ft. Also on Mt. Scratchley, at 4000 ft. (Macgregor in Herb. Kew.).

Allied to *P. sorzogonensis,* differing in the verticillate branches and long silky pedicels.

Pollia sorzogonensis, Endl. Gen. 1029.

Camps I to III, 500 to 2500 ft.

Distrib. Tropical Asia.

Commelina nudiflora, Linn. Sp. Pl. 41.

Camps III to VIII, 2500 to 4900 ft.

Distrib. All warm countries.

Forrestia hispida, Rich. Sert. Astrol. 2, t. 1.

Canoe Camp, 150 ft.

"Purple orange."

Distrib. Endemic in New Guinea.

JUNCACEÆ.

(By H. N. Ridley.)

Juncus lamprocarpus, Ehrh. Calam. 126, *fide* Davies, in Trans. Linn. Soc. x. (1810) 13.

Camp VI *b,* 3900 ft., on the side of a ridge.

This is a weak spreading green form with oblong fruit pale yellowish in colour, and no longer than the petals. The same form occurs in China and the Philippines. I find no allusion to it in Buchenau's Juncaceæ, published in Engl. Pflanzenreich, II. 25.

FLAGELLARIACEÆ.

(By H. N. Ridley.)

Flagellaria indica, Linn. Sp. Pl. 333.

Camps III, 2500 ft., VI *b,* 3900 ft., and VI *c,* 5500 ft.

Var. minor, Hook. f. Fl. Brit. Ind. vi. 391.

Camps I to III, 500 to 2500 ft.

Distrib. (of species). Tropics of the Old World.

It is not usual to find this plant so far inland nor at such an altitude as 2500 ft., it being usually a seashore plant.

SUSUM MALAYANUM, Hook. f. Fl. Brit. Ind. vi. 361.
Canoe Camp, 150 ft.
Distrib. Malaya.

PALMÆ.
(By H. N. RIDLEY.)

ARECA MACROCALYX, Zipp. in Blume, Rumphia, ii. 75, t. 101.
Camp I, 500 ft.
Distrib. Endemic in New Guinea.

SOMMIERIA ELEGANS, Becc. Malesia, i. 68.
Camp I, 500 ft.
Distrib. Endemic in New Guinea.

GRONOPHYLLUM DENSIFLORUM, Ridl., sp. nov.

Folia 70 cm. longa, rhachi furfuracea, costa in medio paginæ superioris convexa, lobis 9 cuneatis 20–24 cm. longis, terminalibus 2 connatis ad basin latioribus, dentibus in marginibus 1–5 cm. longis. *Spadix* pedunculo 3 cm. longo basi 1·5 cm. lato, spicis tribus densifloris, rhachi validula. *Bracteæ* late ovatæ vel semi-orbiculares, in femineis sepalis æquilongæ vel subæquilongæ. *Flores* ♂ 5 mm. longi. *Sepala* 3, perparva, fere linearia, valvata. *Petala* lanceolata, cuspidata, asymmetrica. *Stamina* 6, antheris linearibus. *Flores* ♀ : *Sepala* late orbiculata, intus costata. *Petala* imbricata, basi lata, oblonga, apice abrupte anguste lanceolata et coriacea, sepalis bis longiora. *Ovarium* subglobosum, rugosum, basi abrupte angustatum (quasipedicellatum), uniloculare. *Stigmata* erecta, dentiformia, papillosa. *Staminodia* nulla.

Camp VI *a*, 3100 ft. (In flower, January.)

This species differs from *G. microcarpum*, Scheff., in having only 2 or 3 stout short spikes on the spadix, in the sepals of the male flowers being very narrow and almost separate to the base, and in the coriaceous lanceolate point of the petals in the female being much narrower and more acute, whilst the thinner widely dilate base is much larger in proportion. The male flowers in this plant open apparently long before the females, which are very small at that time. When they fall they appear to leave no separate scar, and the female flowers develop so as to fill up the spadix so closely that the spadix in female flowers appears to be completely unisexual. The rhachis of the leaf has an elevated ridge running down the middle on the upper surface.

The genus includes four species, two from Ceram and two from New Guinea.

LINOSPADIX MICHOLITZII, Ridl. in Gard. Chron. 1895, ii. 262.
Camp I, 500 ft.; and Camp VI *a*, 3100 ft.

The original plants of this species were stemless, with entire obcuneate leaves bifid only at the apex. In one of Kloss's specimens there is a portion of a stem 1 cm. in diameter with smooth internodes 4 cm. long, the nodes having rather a broad annulus where the leaf has fallen. The leaves are also cut into two pairs of leaflets in addition

to the terminal bifid one, one pair being 5 cm. wide, the next 1 cm. wide. It is not infrequent, however, for palms usually stemless occasionally to develop stems (e. g. *Teysmannia* and *Iguanura spectabilis*), or for palms with normally entire leaves to have them occasionally split up into narrower lobes. This often occurs in *Pinanga disticha*, Griff.

LINOSPADIX PAUCIFLORA, Ridl., sp. nov.

Caulis arundinaceus. *Folia* obcuneata, bifida, 16 cm. longa, ad sinum 6 mm. lata, lobis 8 cm. longis integris subobtusis, nervis utrinque ad 14 parallelis in pagina superiore elevatis subtus vix elevatis, petiolo nullo, vagina brunneo-furfuracea, marginibus in fibrillis laciniatis. *Spadices* filiformes. *Spathæ* approximatæ, anguste lineari-lanceolatæ, 2·5 cm. longæ, 3 mm. latæ. *Spadix* 22 cm. longus, parte basali 13 cm. nuda. *Flores* parvi, 2 mm. longi, remoti, rhachi non incrassata, alveolis vix distinctis. ♀: *Sepala* coriacea, suborbicularia, ad margines ciliata. *Petala* duplo longiora, lanceolata, subacuta. *Ovarium* conicum, ovoideum. *Stigmata* crassiuscula, recurva.

Camp III, 2500 ft.

Allied to *L. flabellata*, Becc., but the flowers are smaller and more remote, and the sepals not carinate.

LINOSPADIX ELEGANS, Ridl., sp. nov.

Folia ambitu cuneata, 20 cm. longa, 12 cm. lata, in lobos 8 lineares acuminatos fissa, lobis basalibus 1 cm. latis, cæteris angustioribus 4 mm. latis, terminalibus pro 1 cm. connatis, 8 mm. latis, apice acutis, nervis vix elevatis, petiolo 7 cm. longo dorso convexo ad margines angulato, vagina ligulata, lobis tribus lanceolatis acuminatis 2 cm. longis. *Spadices* filiformes, 45 cm. longi. *Spatha* basalis non visa, suprema spicæ propinqua lineari-lanceolata, 9 cm. longa, 2 mm. lata, acuminata. *Spica* 13 cm. longa, rhachi paullo incrassata. *Flores* dissiti, in alveolis haud profundis siti, 3 mm. longi. ♂: *Sepala* suborbicularia, carinata, glabra. *Petala* elliptica obtusa. *Stamina* 9, filamentis brevissimis, antheris flavis oblongis. ♀: *Sepala* latiora, convexa, nec carinata. *Petala* ovata-triangularia. *Drupa* fusiformis, basi pedicellata, apice breviter obtuse rostrata, multicostata.

Camp I, 500 ft.

Near *L. caudiculata*, Becc., but the lamina is not oval in outline nor the leaflets sigmoid-lanceolate, and the flowers are situated in alveoli.

LICUALA GRANDIFLORA, Ridl., sp. nov.

Folia lamina 60 cm. longa, coriacea, lobis 20 aut pluribus lanceolatis acuminatis 1·5–3 cm. latis apice breviter obtuse bidentatis, nervis 3–5, petiolo 80 cm. longo dorso convexo dimidio inferiore aculeis brevibus rectis armato. *Spadix* valida, 75 cm. longa, pedunculo complanato, ramis 2 pedunculis 7 cm. longis furfuraceis. *Spathæ* 30 cm. longæ, in uno latere fissæ, glabræ, laminis lanceolatis 3·5 cm. latis, tubo ancipite. *Spicæ* 17 cm. longæ, 2 cm. crassæ, rhachi valida pubescente. *Flores* copiosi, lactei, dense congesti, 5 mm. longi, pedicellis brevissimis. *Calyx*

campanulatus, ad $\frac{1}{3}$ 3-lobatus, lobis lanceolatis, costatus et pilis albis tectus. *Petala* paullo longiora, lanceolata, obtusa, glabra, fere lignea, inferne excavata. *Staminum* urceolus tubo corollæ adnatus, antheris oblongis 6. *Ovarium* globosum. *Stigma* parvum.

Canoe Camp, about 150 ft.

A very fine species with unusually large flowers in very densely crowded thick spikes.

LICUALA PENDULIFLORA, Miq. Fl. Ind. Bat. iii. 55.

Camp VI *b*, 3900 ft.

Distrib. Malay Islands.

LICUALA KLOSSII, Ridl., sp. nov.

Folia semi-orbicularia, lobis 12 linearibus dentibus brevibus latis terminatis 1 cm. longis 1·7 cm. (vel minus) latis, nervis 1–3, petiolis 50 cm. vel ultra longis, dorso convexis, ad margines aculeatis. *Spadix* gracilis, 40 cm. longus, ramis 3–4 cm. longis 4–6 patentibus brunneo-furfuraceis. *Spathæ* 2–3, glabræ aut fugaciter furfuraceæ, limbo lanceolato inferioris spathæ 4 cm. longo, tubo æquilongo. *Flores* dissiti, pedicellati, pedicello 1 mm. longo furfuraceo. *Calyx* urceolatus, lobis brevibus ovatis, glaber, 1 mm. longus. *Petala* lanceolata, vix longiora. *Stamina* 6, urceolo brevi. *Ovarium* conicum. *Stylus* petalis ferme æquilongus. *Drupa* globosa, breviter pedicellata, 5 mm. longa.

Camp I, 700 ft.

Nearest to *L. Bacularia*, Becc., but the spadix is only simply branched, the fruit less pedicelled, and the calyx with ovate lobes.

LICUALA FLAVIDA, Ridl., sp. nov.

Folia quadranti-circularia, lobis exterioribus 2 angustis linearibus, cæteris elongatis cuneatis latis 21 cm. longis 4 cm. latis ad apices breviter fissis, lobulis 5–10 mm. longis bidentatis, nervis superne elevatis 5, lobis mediis per $\frac{1}{3}$ connatis, petiolis ultra 15 cm. longis. *Spadix* 30 cm. longus, ramis apice ramulos 4 gerentibus 6–7 cm. longis, floribus dissitis. *Spatha* tubulosa, infima 5 cm. longa, superne ad 1 cm. fissa, glabra, superior 2 cm. longa. *Rhachis* ferrugineo-furfuracea. *Flores* parvi, 3 mm. longi, pedicellis 2 mm. longis. *Calyx* obconoideus, ad basin attenuatus, lobis brevibus subacutis. *Petala* duplo longiora, lanceolata, acuta. *Staminum* urceolus dimidium petalorum superans, lobis brevissimis, antheris parvis. *Stylus* æquilongus.

Camp III, 2500 ft.

Flowers dull yellow.

Allied to *L. telifera*, Becc., but the leaf is less split up with smaller lobes, the spadix less broken up, and the calyx lobes neither scarious nor lacerate.

CALAMUS DEPAUPERATUS, Ridl., sp. nov.

Folia brevia, vaginis dense aciculeis albis circulariter dispositis 3 mm. longis armata, rhachi gracili aculeis brevibus uncinatis minoribus rectis armata, lobis linearibus

acuminatis circiter 9 fasciculatis dissitis 15 cm. longis 1 cm. latis apice paucisetosis. *Spadices* 45 cm. longi, gracillimi, pedunculis 16 cm. longis complanatis aciculatis, ramis 1–2, spicis 2–3. *Spathæ* 2 cm. longæ, tubulosæ, limbo lanceolato. *Spicæ* ♀ 1 cm. longæ, 5-floræ. *Flores* 2 mm. longi. *Calyx* tubuloso-campanulatus, lobis ovatis brevissimis. *Petala* triangularia, acuta, paullo longiora. *Ovarium* conicum. *Stigmata* recurva. *Fructus* oblongo-globosus, 1·5 cm. longus et latus, pallide brunneus vel flavus, squamis 10-seriatis latioribus quam longis 3 mm. latis rhomboideis apice obtusis flavis, margine tenuiter scarioso, linea marginali brunnea.

Camps I to III, 500 to 2500 ft.

Allied to *C. Cuthbertsonii*, Becc., a native of New Guinea, but differing in its linear leaflets, much more slender spadix and large fruit, much more slender spathes and shorter spikes.

Calamus Klossii, Ridl., sp. nov.

Folia basi longe nuda, lobis 7 lanceolatis longe acuminatis 19 cm. latis apice setiferis, setis nigris 12 mm. longis, ad marginem setis paucis munitis ceterum glabris, rhachi obscure triquetra rufo-furfuracea, aculeis 4 mm. longis decurvis acutis basi latis pallidis apice nigris. *Spadix* masculus 53 cm. longus, pedunculo terete parce aculeato, ramis 2, rhachis aculeis binis 1·5 cm. dissitis 2 mm. longis crassiusculis. *Flagellum* terminale 30 cm. longum, medio spatha unica instructum. *Spatha* 2 cm. longa, limbo lanceolato acuto papyraceo mox in fibrillas disrupto. *Spicæ* ♂ 2–4 cm. longæ. *Spathellæ* distichæ, cupulatæ, limbo ovato porrecto, costatæ, approximatæ. *Flores* 5 mm. longi. *Calyx* campanulatus, lobis ovatis dimidium calycis æquantibus. *Petala* triplo longior, lanceolata, obtusa, cymbiformia. *Stamina* 6, filamentis quam petalis brevioribus antheris dorsifixis citrinis in medio curvis. *Pistillodium* minutum. *Spadix* ♀, brevior. *Spicæ* 2–2·5 cm. longæ, latiores et magis compactæ quam masculæ. *Petala* breviora. *Stigmata* brevia, crassa, recurva.

Camps III to VIII, 2500 to 4900 ft., and VI *c*, 5500 ft.

The female flowers are all attacked by a fungus (*Pleogibberella calamia*, Bert & Vogl.) which has destroyed the pistil.

This species seems nearest to *C. dilaceratus*, Becc., of the Andaman Islands, but is much smaller with shorter spadices.

PANDANACEÆ.

(By H. N. Ridley.)

Freycinetia angustissima, Ridl. in Journ. Bot. xxiv. (1886) 15.

Camp I, 700 ft.

Distrib. Endemic in New Guinea, also in British New Guinea.

Freycinetia Beccarii, Solms-Laub. in Ann. Gard. Buitenz. iii. (1883) 100.

Camps III, 2500 ft.; VI *a* and VI *b*, 3100 to 3900 ft.

"Fruit raspberry-red."

Distrib. Endemic in New Guinea.

I have seen no specimen of the type, but it agrees with the description, except that the leaves are somewhat smaller.

Freycinetia inermis, Ridl., sp. nov.

Caulis lignosus, 4 mm. diametro, internodiis brunneis 6 mm. longis. *Folia* lineari-lanceolata, inermia, acuminata, obtusa, versus basin angustata, haud amplexicaulia, tenuiter coriacea, 8–9 cm. longa, 5–10 mm. lata, nervis tenuibus, carina gracili. *Inflorescentia* terminalis. *Bracteæ* ovatæ, triangulares, acuminatæ, obtusæ, costatæ, 2 cm. longæ, 13 mm. latæ vel minores. *Pedunculus* communis 5 mm. longus, pedunculis spicarum 3·1 mm. longis. *Capitula* ♀ obovoidea, 3 mm. longa, in fructu (fere maturo) oblongæ, obtusæ, rubræ, 2 cm. longæ, 1 cm. crassæ. *Stigmata* 2 hippocrepiformia. *Pistilla* mediocria, apice libera, conica.

Canoe Camp, 150 ft.; Camp I, 300 ft.; Camp III, 2500 ft.

Nearest to *F. luzonensis*, Presl, but with narrower unarmed leaves, not sheathing at the base, and thicker and broader bracts. Fruit dull, raspberry-red.

Freycinetia Klossii, Ridl., sp. nov.

Caulis lignosus, 6–7 mm. crassus, internodiis 1·5 cm. longis. *Folia* linearia, basi dilatata, aculeata acuminata, acumine aculeis parvis armata, 43 cm. longa, 12 mm. lata, pallida (sicca), tenuiter coriacea, costa gracili. *Inflorescentia* terminalis, pedunculo communi brevi 1 cm. longo, pedunculis spicarum 1·5 cm. longis. *Spicæ* 3–4, in fructu oblongo-cylindricæ, obtusæ, 3·5 cm. longæ, 1·5 cm. crassæ. *Pistilla* angusta, angulata. *Stigmata* 2, hippocrepiformia, minima, apicem pistilli tegentia.

Camp I, 500 ft.

Allied to *F. radicans*, Gaud., but with much smaller spikes.

Freycinetia lateriflora, Ridl., sp. nov.

Caules graciles, 2 mm. crassi, internodiis 1 cm. longis. *Folia* linearia, acuminata, curvula, tenuia, inermia, 12 cm. longa, 3 mm. lata, costa gracili. *Inflorescentia* lateralis, pedunculo 5 mm. longo bracteis ovatis acutis costatis 2 mm. longis tecto. *Pedunculi* spicarum 5 mm. longi. *Bracteæ* florales oblongæ, truncatæ, 5 mm. longæ et latæ, mucrone brevi obtuso. *Capitula* 2, globosa, 4 mm. longa. *Flores* ♀ $\frac{1}{2}$ mm. latæ. *Stigmata* 2, semi-orbicularia, apice pistilli minora. *Fructus* fere 2 mm. longi, pulposi, oblongi, rubri.

Camps III, 2500 ft.; VI *b* and VI *c*, 3900 to 5500 ft.

Very distinct in its small lateral inflorescence and short broad bracts.

FREYCINETIA RHODOSPATHA, Ridl., sp. nov.

Caulis validus, lignosus, 2 cm. crassus, internodiis 2 cm. longis, radicibus elongatis validis. *Folia* linearia, acuminata, subobtusa, inermia, in sicco nigra, vaginis cervinis, 30 cm. longa, 2 cm. lata. *Spicæ* laterales subsessiles, pedunculo brevi 3 cm. longo, bracteis distichis ovatis crasse coriaceis costatis marginibus aculeis brevibus dentiformibus pallidis armatis. *Bracteæ* florales crasse coriaceæ, fere lignosæ, inermes, lanceolatæ, obtusæ, 9 cm. longæ, 3·5 mm. latæ, kermesinæ, costa vix elevata. *Spicæ* 4, flavæ, cylindricæ, obtusæ, 3 cm. longæ, 5 mm. crassæ, in pedunculis ligneis 3 cm. longis. *Stigmata* 4–6 in syncarpio, fere circularia.

Camp III, 2500 ft.

Near *F. arborea*, Gaud. A very fine plant with crimson bracts.

PANDANUS SETISTYLUS, Warb. in Engl. Pflanzenreich, H. 3, p. 81. fig. 21 A–C.

Camp VI *b*, 3900 ft.

Distrib. Endemic in New Guinea.

PANDANUS (§ ACROSTIGMA) PAPUANUS, Ridl., sp. nov.

Planta humilis. *Folia* rigide coriacea, linearia, acuminata, sicca pallida, 15 dm. longa, 5–5·5 cm. lata, in marginibus et costa aculeata, aculeis ad basin 2 mm. longis pallide brunneis superne minoribus et magis copiosis, ad apicem densis minimis. *Syncarpium* in pedunculo valido 13 cm. longo solitarium, angulatum, angulis aculeis 1–3 connatis armatis. *Bracteæ* lanceolatæ, foliaceæ. *Syncarpium* (juvenile) oblongum, 4 cm. longum, 2 cm. latum. *Drupæ* apicibus liberis conicis. *Stylus* brevis, 2 mm. longus, quam apex brevior, stigmate totius longitudinis.

Canoe Camp, 150 ft.

Not closely allied to any species.

AROIDEÆ.

(By H. N. RIDLEY.)

COLOCASIA ANTIQUORUM, Schott, Melet. i. 18.

Camp I, 500 ft.

Distrib. Cultivated throughout the tropics.

ALOCASIA SCABRIUSCULA, N. E. Br.? in Gard. Chron. 1879, ii. 29, 296.

Utakwa Valley, without precise locality. In fruit only.

Distrib. Borneo.

HOMALOMENA (§ CHAMÆCLADON) APICULATUM, Ridl., sp. nov.

Herba parva. *Foliorum* petioli gracillimi, 8 cm. longi; vaginæ 1 cm. longæ; lamina lanceolata, acuminata, mucronulata, a basi angustata, 5 cm. longa, 1 cm. lata, nervis 4. *Pedunculus* 4 cm. longus, gracilis. *Spatha* oblonga, 2 cm. longa,

apiculo 3 mm. longo. *Spadix* spathæ æquilonga, 2 cm. longa. *Pars* ♂ angustissima, acuta, quam pars ♀ longior. *Ovaria* globosa, bilocularia, stigmatibus parvis discoideis. *Staminodia* minima, oblonga. *Semina* oblonga, minute tuberculata.

Camp I, 700 ft.

Very near *H. angustifolia*, Jack, of the Malay Peninsula, but differing in the long point of the spathe and the longer male part of the spadix.

HOMALOMENA (§ CHAMÆCLADON) KLOSSII, Ridl., sp. nov.

Planta humilis. *Foliorum* petioli gracillimi, 7 mm. longi; vaginæ angustæ, 2 cm. longæ; lamina ovata, elliptica, apice acuta, mucronulata, basi rotundata, inæquilatera, emarginata, 8·5 cm. longa, 4 cm. lata, margine incrassato, nervis 12 gracilibus in costa decurrentibus, secundariis circiter 70 inconspicuis. *Pedunculus* 5 cm. longus, gracilis. *Spatha* 1·4 cm. longa, oblongo-cylindrica, cuspide acuminato 5 mm. longo. *Spadix* breviter stipitatus, 1 cm. longus, 2 mm. crassus, parte ♂ 7 mm. longa. *Flores* ♂ irregulariter oblongo-rotundati; ♀ globosi, dissiti, pauci, stigmatibus magnis discoideis. *Staminodia* nulla.

Canoe Camp, about 150 ft. (dry country).

I found this mixed with *Homalomena inæqualis* (see below), from which it differs in the smaller leaves and long point to the spathe, which is also shorter and thicker.

HOMALOMENA DISTANS, Ridl., sp. nov.

Herba pro sectione magna. *Foliorum* petioli graciles, 30 cm. longi; lamina ovata, cordata, a sinu usque ad apicem 13 cm. longa, basi 10·5 cm. lata, lobis late rotundatis lobis 4 cm. longis, basi 4·2 cm. latis, apice acuminato, nervis e sinu orientibus 8 tenuibus e costa 2, secundariis tenuibus copiosis fere æque conspicuis margine (in sicco) incurvo. *Pedunculus* 8–16 cm. longus, gracilis. *Spatha* cylindrica, medio haud angustata, cuspidata, 3 cm. longa, basi 5 mm. lata. *Spadix* angustus, cylindricus, spathæ fere æquilongus, 3 mm. crassus, breviter stipitatus, parte ♂ 2 cm., ♀ 1 cm. longa. *Flores* ♂ anguste oblongi, plurimi, remoti, ovariis cylindricis, stigmatibus discoideis. *Staminodia* oblonga, truncata, haud stipitata, quam ovarium multo breviora.

Camp VI *a*, 3100 ft.

Allied to *H. tenuispadix*, Engl., of New Guinea, from which it differs in the cordate not sagittate leaves, the much smaller spathe, and very short stipes to the spadix.

HOMALOMENA (§ CHAMÆCLADON) INÆQUALIS, Ridl., sp. nov.

Herba pro sectione magna. *Foliorum* petioli graciles, 32 cm. longi; lamina oblique ovata, basi rotundata, obscure vel haud lobata, apice longe acuminata, 14 cm. longa, 6 cm. lata, cuspide 1·5 cm. longo, nervis e costa ortis 18 tenuibus vix a secundariis distinguendis. *Pedunculus* 7–15 cm. longus, gracilis. *Spatha*

cylindrica, breviter mucronata, 2·5 mm. longa, 5 mm. lata, medio non angustato. *Spadix* cylindricus, angustus, 2 cm. longus, stipitatus, stipite 2 mm. longo; parte ♂ 1·5 cm. longa, 2 mm. crassa; parte ♀ breviore. *Flores* pauci, circiter 30, subremoti. *Ovaria* globosa, stigmatibus minoribus discoideis. *Staminodia* minima, oblonga, truncata, haud alba, quam ovaria multo breviora.

Canoe Camp, 150 ft. (dry country), and Camp VI *b*, 3900 ft. (on the side of a ridge).

This differs from the preceding species in its nearly entire leaves, different venation, smaller spadix and spathe, and in the female portion being smaller, with fewer flowers less separate and often touching.

These two plants, with *H. tenuispadix*, form a link between the two sections of *Homalomena*, resembling *Euhomalomena* in the large size of the foliage and the habit, and *Chamæcladon* in the small staminodia shorter than the ovaries, and not conspicuously white. All also possess the character of distinct female flowers, which do not touch each other on the spike.

SCHISMATOGLOTTIS KLOSSII, Ridl., sp. nov.

Herba parva. *Folia* lanceolata, acuminata, cuspidata, basi breviter angustata, retusa vel latiora, breviter cordata, superne viridia, subtus pallida, 9 cm. longa, 3 cm. lata, nervis circiter 20; petioli 5 cm. longi; vagina lata, 3 cm. longa. *Cataphylla* lanceolata, papyracea, 2 cm. longa. *Pedunculus* 3·5 cm. longus. *Spatha* 5 cm. longa, basi tubulosa, viridia, 2 cm. longa, lamina convoluta dilatata cuspidata 3 cm. longa. *Spadix* 3·5 cm. longus, parte ♀ angusta cylindrica superne breviter angustata, parte ♂ superne gradatim dilatata, apice lato rotundato sterili 6 mm. longo 5 mm. lato. *Flores* steriles irregulariter angulati, rufo-punctati, breviores, thecis magnis duobus. *Ovaria* oblonga versus basin minora, ovulis paucis, stigmate parvo capitato.

Camps III to IV, 1100 to 2500 ft.

Near *S. celebica*, Engl., but the foliage differs in its more numerous nerves, and is broader in proportion to its length, the sterile flowers at the top of the spadix are little longer than the male flowers, and the pistils oblong and not globose.

RAPHIDOPHORA NUTANS, Ridl., sp. nov.

Planta scandens, ramis elongatis gracilibus, internodiis 3 cm. longis 2 mm. crassis. *Folia* remota, elongata, lanceolata, longe acuminata, 16 cm. longa, tenuiter coriacea, basi breviter angusta, nervis tenuibus copiosis ascendentibus, petiolis 1 cm. longis. *Pedunculus* terminalis, nutans, 2 cm. longus. *Bractea* ad basin lanceolata, decidua, 3 cm. longa. *Spatha* lanceolata, caudato-acuminata, falcata, 2 cm. longa. *Spadix* 1·2 cm. longus, 7 mm. crassus, oblongus, cylindricus, apice rotundatus. *Florum* verticilli ad 6, pauciflori, floribus pro spadice majusculis. *Staminum* filamenta pistillo æquilonga, thecis ovalibus. *Stylus* breviter cylindrico-conicus.

Camp VI *a*, 3100 ft.

Allied to *R. minor*, Hook. f.

Raphidophora Peepla, Schott, in Bonplandia, v. (1857) 45.

Camp VI *b*, 3900 ft.

Form with a rather large spadix, in fruit, 7 cm. long and 2 cm. across, with pistils 4 mm. across.

Distrib. India and Borneo.

Raphidophora Versteegii, Engl. & Krauss, in Nova Guinea, viii. Bot. 247.

Camps I to III, 500 to 2500 ft.

Distrib. Endemic in New Guinea.

Cyrtosperma macrotum, Becc. ex Engl. in Bull. Soc. Tosc. Ortic. iv. (1879) 295.

Camps I to III, 500 to 2500 ft.; VI *a*, 3100 ft.; VI *b*, 3900 ft.

"Spathe yellowish white."

Distrib. Endemic in New Guinea.

Pothos clavatus, Engl. l. c. 266.

Camp VI *a*, 3100 ft.

Distrib. Endemic in New Guinea.

Pothos brevispatha, Ridl., sp. nov.

Caules et rami graciles, costati, 2 mm. crassi, internodiis 2 cm. longis. *Folia* lanceolata, acuminata vel elliptico-lanceolata, versus basin obtusam angustata, tenuiter coriacea, 14–15 cm. longa, 3–5 cm. lata, nervis 10 inconspicuis a costa ascendentibus marginibus subparallelis, petiolis 1 cm. longis ad geniculum alatis haud complanatis. *Pedunculi* in axillis superioribus decurvi, 2·5 cm. longi. *Spatha* lanceolata, acuminata, deflexa, 6 mm. longa, 2 mm. lata. *Spadix* sessilis, 2 mm. longus, oblongus, in fructu ad 6 mm. longus. *Bacca* ellipsoidea, 5 mm. longa.

Camp I, 500 ft.

Allied to *P. Cumingianus*, Schott, but differing in the venation, the ascending primary nerves meeting and forming a marginal nerve, whilst the secondary nerves are transverse; the texture of the leaf is also different, being thinner, the petiole shorter and broader and winged for its whole length.

ERIOCAULACEÆ.

(By H. N. Ridley.)

Eriocaulon leucogenes, Ridl., sp. nov.

Herba humilis. *Folia* lanceolata, linearia, acuminata, glabra, 3 cm. longa, 2 mm. lata. *Scapus* gracilis, 11 mm. longus, tortus; vagina basalis viridis, apice lanceolata, 1·5 cm. longa. *Capitulum* hemisphæricum, 4 mm. latum. *Bracteæ* involucrales oblongæ, obovatæ, glabræ, flavescentes, nitidæ. *Bracteæ* florales obovatæ, oblongæ, carinatæ, nigrescentes, apice plurimis pilis albis. *Receptaculum* glabrum. *Flos* ♂: sepala in tubum latum connata, apice albo-

barbata. *Antheræ* nigræ. *Flos* ♀: *Sepala* libera, spathulata, apice barbata. *Ovarium* bilobum, rotundatum, sessile, glabrum. *Stylus* gracilis, stigmatibus filiformibus duobus. *Semina* 2, oblonga, minutissime punctulata, ochracea.

Camps VI *a*, 3100 ft. (summit of ridge), and VIII to IX, 3600 to 5500 ft.

This small species somewhat resembles *E. odoratum*, Dalz., of India, but has quite sessile fruits and broader sepals in the female flower.

CYPERACEÆ.

(By H. N. Ridley.)

Kyllinga monocephala, Rottb. Descr. et Ic. 13, t. 4. fig. 4.

Camps I to III, 500 to 2500 ft.; Camp IV, 2100 ft.; Camp VI *a*, 3100 ft.; Camp VI *b*, 3900 ft.

Distrib. Common all over the tropics.

Kyllinga brevifolia, Rottb. l. c. fig. 3.

Camps III to VIII, 2500 to 4900 ft.

Distrib. Common in the low country; all tropical countries.

Cyperus Haspan, Linn. Sp. Pl. 66.

Camps VI *a*, 3100 ft. (top of the ridge) to VI *c*, 5500 ft.

Distrib. Common all over the tropics.

Cyperus diffusus, Vahl, Enum. ii. 321.

Camp I, 700 ft.

Distrib. Tropics generally.

Cyperus rigidulus, Ridl., sp. nov.

Herba parva, cæspitosa, 7 cm. alta. *Folia* rigida, linearia, acuminata, acuta, apice spinulosa, 5 cm. longa, 4 mm. lata, tenuiter costata, vaginis ad basin brevibus ovatis vel lanceolatis purpureis. *Culmi* triquetri, 4 cm. longi. *Bracteæ* involucrales 2, foliis similes, una 3·5 cm. longa, altera minor. *Spicæ* in capitulum sessile 1 mm. latum condensatæ. *Spiculæ* 5 mm. longæ, circiter 20, rhachi glabra crassiuscula, alveolis profundis. *Glumæ* ovatæ, acuminatæ, subacutæ, fere 1 mm. longæ, pallidæ, carinis rotundatis latis obscure costatis. *Stylus* trifidus, brevis, purpureus. *Caryopsis* $\frac{3}{4}$ glumæ excedens, triquetra, obovata, versus basin distincte ad apicem paullo attenuata, pallide brunnea, nitida.

Between Camps III and VI, 3000 ft.

Allied, perhaps, to *C. stoloniferus*, Retz.

Cyperus papuanus, Ridl., sp. nov.

Herba elata, foliis elongatis linearibus longe acuminatis flaccidis 80 cm. longis 1 cm. latis, nervis prominulis 3. *Culmus* subgracilis, 60 cm. altus, triqueter, lævis, 2 mm.

crassus. *Bracteæ* involucrales 3–4, maxima 62 cm. longa, 1 cm. lata, foliis similes. *Umbellæ* radii circiter 16, 1·7 cm. longæ, graciles simplices vel raro apice breviter ramosi, ad apices spiculas 3–5 ferentes. *Vaginæ* ad basin radiorum tubulosæ, 6 mm. longæ, laminis brevibus lanceolatis. *Spiculæ* 8–10 mm. longæ, 1·5 cm. latæ, rufescenti-flavæ. *Glumæ* anguste lineares, oblongæ, truncatæ, carinis sæpe in mucronem minutum extensis. *Stylus* brevis, vix e gluma protrusus; stigmata purpurea.

Camp VI *b*, 4400 ft.

Allied to *Cyperus Babakan*, Steud., but with much more extended umbels, more slender spikelets, narrower and blunter glumes, and different foliage. All the specimens are in flower, and I have seen no ripe fruit.

CYPERUS PLATYPHYLLOS, Ridl., sp nov.

Folia 2–4, lanceolata, linearia, longe acuminata, versus basin angustata, vaginantia, tenuia, ad 32 cm. longa, 1·5 cm. lata, trinervia, costa elevata, nervis gracilibus. *Spicæ* 4, sessiles vel subsessiles, in capitulum condensatæ. *Bracteæ* involucrales foliis similes, maxima 30 cm. longa, 1·5–2 cm. lata. *Spicæ* plures in capitulis 1 cm. longis subglobosis pallide brunneis, inferiores sæpe pedunculis 1 cm. longis suffultæ. *Spiculæ* plures, densæ, 5 mm. longæ, breviter pedunculatæ. *Bracteæ* basales, lanceolatæ, acuminatæ, costatæ. *Glumæ* lanceolatæ, acuminatæ, ad margines tenuiores, costatæ. *Antheræ* oblongæ, breviter extrusæ, pallide brunneæ. *Stylus* quam gluma vix longior, ruber, stigmatibus brevibus 3. *Caryopsis* ellipsoidea, triquetra, $\frac{2}{3}$ longitudinis glumæ æquans, brunnea, facie interiore latiore.

Camp VI *b*, 3900 ft.

It is difficult to suggest an affinity for this species. The foliage recalls that of *Cyperus diffusus* and other woodland *Cyperi*.

MARISCUS CYPERINUS, Vahl, Enum. ii. 377.

Camp III, 2500 ft.

Distrib. Eastern tropics.

SCIRPUS CHINENSIS, Munro, in Seem. Bot. Voy. 'Herald,' 433

Camps IX to X, 5500 to 6700 ft.

Distrib. Malay Archipelago.

FIMBRISTYLIS DIPHYLLA, Vahl, Enum. ii. 209.

Camps IV to VI, 1100 to 2100 ft. A slender form.

Distrib. Cosmopolitan in the tropics.

FIMBRISTYLIS POLYTRICHOIDES, R. Br. Prodr. 226.

Camp VI *a*, 3100 ft.

A very slender grassy form, over a foot tall, with small slender spikes.

Distrib. Indo-Malaya, Australia.

LIPOCARPHA DEBILIS, Ridl., sp. nov.

Planta debilis, gracillima, 27 cm. alta. *Culmi* singuli vel bini, teretes, basi vaginis 1–2 rufescentibus, superne folio unico longo lineari angustissimo 15 cm. longo 1 mm. lato instructi. *Capitulum* solitarium, album, 5 mm. longum, ovoideum, bractea altera lineari 6 mm. longa patente, altera erecta 8 cm. longa. *Spiculæ* plures. *Glumæ* exteriores lanceolatæ, basi angustatæ, apice subacutæ, haud recurvæ, 1 mm. longæ, albæ, carina viridi; glumæ interiores breves, lanceolatæ, convolutæ. *Stamina* 2, antheris longis rubris linearibus ecristatis. *Stylus* vix glumas superans; stigmata 2, brevia, rubra. *Caryopsis* elongata, curva, cylindrica, erostrata.

Camp VI *c*, 5500 ft.

Allied to *L. microcephala*, Kunth, but with no recurved point to the glumes, and is a much weaker and more slender plant.

CLADIUM SINUATUM, Ridl., sp. nov.

Herba magna, cæspitosa, 50 cm. alta, radicibus validis. *Caules* complanati. *Folia* disticha, ensiformia, elongata, coriacea, 35 cm. longa, 4 mm. lata, acuta, vix pungentia. *Inflorescentiæ* terminales atque, ex axillis foliorum superiorum, quam folia breviores sinuatæ, ramis circiter 4 cm. longis costatis, vagina magna, basi costata. *Capitula* 3–4 mm. longa et fere æquilata. *Spiculæ* plures, floribus 3–4. *Gluma* exterior lanceolata, acuta, cuspidata, rufa, ciliata; interiores 3, ovatæ, marginibus et carina ciliatis. *Stamina* tria. *Ovarium* trigonum. *Stylus* gracilis, rufus, stigmata 3. *Caryopsis* ovoidea, triquetra, rugosa, rostro conico æquilongo albo-sericeo.

Camp VI *a*, 3100 ft.

Perhaps near to *C. colpodes*, Lauterb., but the style is not hairy and the nut rugose and smaller, and the leaves much narrower.

CLADIUM FALCATUM, C. B. Clarke MSS.; *Baumea falcata*, Nees, in Hook. Kew Journ. vi. (1854) 29.

Camps XIII to XIV, 10,500 to 12,500 ft.

Distrib. Philippines.

SCHŒNUS APOGON, Roem. & Schult. Syst. t. 2, 77.

Camps XIII to XIV, 10,500 to 12,500 ft.

Distrib. Australia, Borneo, Luchu Islands.

HYPOLYTRUM PARVIBRACTEATUM, C. B. Clarke, in Kew Bull. (1889) 114.

Camps I to VI, 500 to 3900 ft.

Evidently a common plant, originally collected on Mt. Scratchley, and also in the Solomon Islands. It is a much larger plant than *H. proliferum*, Boeck., to which it is allied, but with much larger leaves, and somewhat variable in size.

HYPOLYTRUM VIRIDINUX, C. B. Clarke, in Philipp. Journ. Sc. ii. (1907) 109.

Camps I to III, 500 to 2500 ft.

Distrib. Philippines.

HYPOLYTRUM MINUS, Ridl., sp. nov.

Folia linearia, acuminata, trinervia, marginibus scabris aculeis minutis pallidis, 70 cm. longa, 1 cm. lata. *Culmus* 60 cm. longus, triqueter, gracilis. *Folia* 2, vaginis longis. *Panicula* ramis 2 cm. longis vel minoribus scabridis. *Spiculæ* conoideæ, parvæ, 1·5 mm. longæ, castaneæ. *Glumæ* ellipticæ, ovatæ, obtusæ, pallide brunneæ. *Squamellæ* lanceolatæ, tenuissimæ, carinis hirtis. *Staminis* filamentum tenue, anthera brevis, oblonga, truncata. *Caryopsis* (vix matura) obovoidea, ad basin angustata, apice breviter rostrata.

Camps I to III, 500 to 2500 ft., and VI *a*, 3100 ft.

Allied to *H. latifolium*, Rich., but a smaller and weaker plant, with the edges of the leaves scabrid and the spikes smaller, ovoid in shape.

THORACOSTACHYUM SIMPLEX, Ridl., sp. nov.

Herba parva. *Folia* lineares, abrupte cuspidata, cuspide 2·5 cm. longo, 25 cm. longa, 9 mm. lata, subtus glaucescentia, nervis conspicuis, costa elevata, marginibus cuspide et carina aculeis parvis brunneis munitis. *Culmi* gracillimi, 6 cm. longi, ferruginei, furfuracei. *Spica* solitaria, terminalis, primo ellipsoidea, obtusa, 5 mm. longa. *Gluma* inferior ovata, subacuta, 1 mm. longa, superiores ovatæ, rotundatæ, pubescentes, omnes atrorufæ. *Squamellæ* angustæ, lanceolatæ, atrorufæ, pilis rufis copiosis in carina. *Stylus* brevis, vix glumam superans. *Caryopsis* ovoidea, rostro longo canaliculato, 5 mm. longa, atra polita.

Camp VI *a*, 3100 ft.

A curious little plant, remarkable for its solitary spikes and long-beaked, nearly black fruit.

CHORIZANDRA INVOLUCRATA, Ridl. *Capitularia involucrata*, Suringar, in Lorentz, Nova Guinea, viii. 711, t. 118.

Rhizoma repens, 5 mm. crassum, vaginis ovatis costatis acutis 5 mm. longis vel minoribus tectum. *Culmus* quadrangularis, 40 to 60 cm. altus, vaginis una vel pluribus lanceolatis papyraceis 10 cm. longis basi 7 mm. latis. *Folia* involucralia 6–8, in pseudo-verticillum terminalem collecta, erecta, rigide coriacea, lanceolato-linearia, acuminata, acuta, costata, 20–30 cm. longa, 6–10 mm. lata. *Capitulum* solitarium, sessile, 1 cm. longum vel brevius, obconicum. *Bracteæ* late ovatæ, abrupte obtuse cuspidatæ, cartilagineæ, atro-brunneæ, nitidæ, 5 mm. longæ, cuspidibus pallidis 3 mm. longis. *Spiculæ* dense congestæ, floribus masculis pluribus, femineo uno terminali. ♂: *Glumæ exteriores* oblongæ, subspathulatæ, cucullatæ, carina acuta dorso scabrido. *Glumæ interiores* 2, spathulatæ, truncatæ, costa convexa superne in costas 3 fissis, pallidæ, apice rufescentes, *floralis* anguste lanceolata, tenuior. *Stamen* 1, filamento tenui lineari pallido apice paullo dilatato rubro.

Anthera pallide citrina, linearis, 2 mm. longa, apiculo minuto rubro. ♀: *Gluma* ut in ♂; stylo tenui purpureo, 4 mm. longo. *Caryopsis* 8 mm. longa, 4 mm. crassa, ovoidea, medio dilatata, basi obconica, angustata, apice acuta, ocrea, nitida in medio multi costata.—Ab aliis speciebus differt foliis involucralibus 6–8 elongatis planis lanceolatis linearibus.

Canoe Camp, 700 ft.

The genus *Chorizandra* comprises two species, natives of Australia and New Caledonia. These are wiry xerophytic plants, with a few terete leaves at the base, or leafless, the involucre consisting of one or two terete acute, erect, foliar organs. The plant above described differs conspicuously in having a false whorl of broad leaf-like organs surrounding the solitary head. The stems are borne singly on a fairly stout woody rhizome, and at the base are enclosed in a mass of brown sheaths. They are 4-angled, an unusual thing in Cyperaceæ. The head of flowers is half hidden in the bases of the involucral leaves, and consists of a compact mass of spikelets with stiff, cuspidate, blackish-brown bracts at the base. The spikelets are composed of a mass of glumes, the outer ones broad, acutely keeled, narrowed and flat in the lower part, the upper ones gradually passing into lanceolate nearly flat pale glumes tipped with reddish brown. In each of these there is a single stamen, except the terminal one, which bears a pistil. In Bentham and Hooker's 'Genera Plantarum' (iii. 1057), the description of the spikelets is given as "Spiculæ multifloræ, floribus omnibus hermaphroditis (vel apud auctores nonnullos in capitulo androgyno numerosæ 1-floræ uni-sexuales)." I do not think there is any doubt as to the structure of the spikelet; at the base are two or three empty glumes, or bracts, of a somewhat peculiar shape, broad, oblong, spathulate-hooded, and stiff; the rest (very numerous) are simply lanceolate, and each subtends and slightly curves round a single stamen, representing a monandrous flower, except the terminal one, which half encloses the pistil, representing a monogynous flower.

Suringar (*l. c.*) describes and figures what is evidently intended for this plant, under the name *Capitularia involucrata* (nov. gen. et sp.). His specimen seems to have been a poor one, and his account of the inflorescence is not very clear, as he seems to have misunderstood the structure of the spike. However, his figure of the whole plant is sufficiently clear to identify it; it was obtained at Alkmaar by Versteeg.

The genus *Chorizandra*, with the African *Chrysothrix* and the Asiatic *Lepironia* and *Scirpodendron*, seem to me to form a somewhat natural group, each spike possessing a number of monandrous flowers with one terminal female flower.

MAPANIA MACROCEPHALA, K. Schum. in Engl. Bot. Jahrb. xiii. (1891) 265.

Camp VI *a*, 3500 ft.

Distrib. Endemic in New Guinea.

MAPANIA RADULOSA, Ridl., sp. nov.

Folia linearia, longe acuminata, 90 cm. longa, 1–1·5 cm. lata, coriacea, marginibus et costis spiculosis aculeis minutis. *Scapi* graciles, spinulosi, obtuse triquetri, 70 cm.

longi. *Capitulum* primo fusiforme, bracteis involucralibus 2 lanceolatis obtusis vel subacutis viridibus 8 cm. longis in fructu ovatis patentibus. *Glumæ* oblongæ, apice rotundatæ, scariosæ, tenues, pallidæ. *Squamellæ* anguste lanceolatæ, carina capillorum alborum fasciculis instructæ. *Antheræ* flavescenti-albæ, lineares, haud apiculatæ. *Stylus* purpureus, stigmatibus 3 brevibus. *Caryopsis* ovoidea, abrupte in pedem longum angustata, superne conica, longitudinaliter rugosa, basi styli persistente.

Camp VI *a*, 3100 ft.

MAPANIA PAPUANA, Ridl., sp. nov.

Herba cæspitosa. *Folia* disticha, linearia, acuminata, caudata, 80 cm. longa, 1·7 cm. lata, marginibus in parte superiore et apice spinulosis aculeis minutis pallidis. *Scapi* graciles, 15–18 cm. longi, obscure angulati, pilis minutis appressis scabridi. *Folia* vaginantia, 3 vel plura, 4 cm. longa, laminis lanceolatis obtusis. *Capitulum* juvenile conoideum. *Bracteæ* ovatæ, lanceolatæ, 1 cm. longæ, 5 mm. latæ, costa distincta et nervis tenuioribus, marginibus scariosis. *Glumæ* oblongæ, apice rotundatæ, marginibus scariosis. *Squamellæ* angustissimæ, carina pilis albis minutis copiosis vestita. *Staminum* filamenta quam gluma breviora, anthera lineari haud cristata pallide flava.

Camp I, 500 ft.

MAPANIA PANDANACEA, Ridl., sp. nov.

Rhizoma validum, lignosum. *Folia* plura, disticha, tenuiter coriacea, elongata, lanceolata, caudata, versus basin angustata, 50 cm. longa, 2·5 cm. lata, cauda 6 cm. longa, pallida, marginibus brevissime aculeatis, nervis validis 3. *Scapus* quam folia brevior, 30 cm. longus, triqueter, folio vaginante uno in medio scapo longo, vagina 3 cm. longa, lamina 30 cm. longa. *Capitulum* solitarium, conoideum, sessile; bracteæ involucrales 4, foliiformes, exteriores folia simulantes, interiores ovatæ, breviter acuminatæ. *Spiculæ* 2·5 cm. longæ, bractea lanceolata pallida obtusa suffultæ. *Glumæ* et squamellæ anguste lanceolatæ, apice pubescentes. *Antheræ* breves, lineares, curvæ, haud apiculatæ. *Stylus* elongatus, gracilis, stigmatibus 3 brevibus.

Canoe Camp, 150 ft.

A very distinct plant in its foliage, which resembles that of some of the dwarf *Pandanus*, such as *P. parvus*, Ridl. The broad leaves with a spiny edge are remarkable in a *Mapania*, as are the large involucral leaves surrounding the capitulum. The only specimen is, unfortunately, in young flower.

CAREX NEO-GUINEENSIS, C. B. Clarke, in Kew Bull. Add. Ser. viii. 73.

Camps X to XIII, 6700 to 10,500 ft.

The utricles in these specimens are more hairy than usual.

Distrib. Endemic in New Guinea.

CAREX INDICA, var. MILNEI, C. B. Clarke, in Hook. f. Fl. Brit. Ind. vi. 715.
Camps VI *a*, 3100 ft.; VII to VIII, 3600 to 4900 ft.
Distrib. Malaya to Fiji.

CAREX SCLERIOIDES, Ridl., sp. nov.
Herba gracilis, 45 cm. alta. *Folia* angusta, linearia, 35–40 cm. longa, 3 mm. lata, scabride spinulosa. *Paniculæ* 3–4, ramis pubescentibus, 2–6 cm. longæ, 1–2 cm. latæ. *Flores* parvi. *Glumæ* lanceolatæ, acutæ, ½–1 mm. longæ, pallide rufescentes. *Utriculi* 2 mm. longi, ellipsoidei, longe rostrati, multinerves, obscure triquetri, flavescentes, glabri, rostro sæpius decurvo bifido; stylus vix utriculum superans, trifidus, ruber. *Caryopsis* fusca, ellipsoidea, triquetra, minute punctata, 1 mm. longa.
Camps VIII to XI, 4900 to 8300 ft.
This plant is undoubtedly allied to *Carex indica*, var. *Milnei*, C. B. Clarke (*Carex fissilis*, Boott), but differs in the very much smaller, shorter beaked fruit and very small glumes, the beak of the utricle being as long as the dilated portion, and usually deflexed.

CAREX BREVICULMIS, R. Br. Prodr. 242, var. PERCILIATA, Kükenthal, in Engl. Pflanzenreich, H. 38, p. 469.
Camps XIII to XIV, 10,500 to 12,500 ft.
Some of the forms are quite tall and slender; all have very hairy utricles. In specimens collected at 12,500 ft. the utricles are nearly glabrous.
Distrib. Australia.

GRAMINEÆ.

(By H. N. RIDLEY.)

PASPALUM SANGUINALE, Lam. Ill. i. 176.
Camp VI *b*, 3900 ft.
Distrib. Cosmopolitan.

ISACHNE AUSTRALIS, R. Br. Prod. 196.
Camps III to IX, 2500 to 5500 ft.
Distrib. Malaya and Australia.

ISACHNE MILIACEA, Roth, Nov. Pl. 58.
Camps III to VI *c*, 2500 to 5500 ft.
A form with glabrous glumes was collected at Canoe Camp at about 150 ft.

Var. STRICTA, Ridl., var. nov.
Culmi graciles, 30 cm. longi. *Folia* anguste lanceolata, acuminata, remota, 3 cm. longa, 4 mm. lata, parce hirta, vagina pubescente, ore ciliato. *Panicula* 4 cm. longa, ramis tenuibus vix patulis. *Glumæ* i. and ii. lanceolatæ, obtusæ, glabræ, gluma iii. glabra et iv. pubescente paullo longiores.
Camps III to IX, 2500 to about 4900 ft.

I refer this form to *I. miliacea* on account of its hairy leaves and pubescent 4th glume; its form and habit is more suggestive of *I. australis*, but the branches of the panicle are strict, erect, and not spreading, and the outer glumes are lanceolate.

PANICUM INDICUM, Linn., var. GRACILE, Hook. f. Fl. Brit. Ind. vii. 42.
Camps VI *a*, 3100 ft.; VII to IX, 3600 to 5500 ft.
Distrib. All Tropical Asia and Australia.
This is the tall slender cylindric-spiked form with usually purple spikelets, resembling *P. interruptum*, Willd., except in its straight spikelets.

PANICUM INTERRUPTUM, Willd. Sp. Pl. i. 341.
Camps III to VIII, 2500 to 4900 ft.
Distrib. Tropical Asia and Africa.

PANICUM CRUS-GALLI, Linn. Sp. Pl. 56.
Camps VII to VIII, 3600 to 4900 ft.
Distrib. Cosmopolitan.

PANICUM PLICATUM, Lam. Encycl. iv. 736.
Apparently common from Camps I to IX, 500 to 5500 ft.
Distrib. Tropical Asia.

PANICUM PATENS, Linn. Sp. Pl. 86.
Camps VII to VIII, 3600 to 4900 ft.
Distrib. Tropical Asia and Polynesia.

ICHNANTHUS PALLENS, Munro, in Benth. Fl. Hongkong. 414.
Camps VI *c*, 5500 ft., and VII to IX, 3600 to 5500 ft.
Distrib. Tropical Asia.

SETARIA GLAUCA, Beauv. Agrost. 51.
Camps VIII to X, 4900 to 6700 ft.
An unusually high altitude for this grass.
Distrib. Cosmopolitan.

PENNISETUM MACROSTACHYUM, Trin. in Mém. Acad. Pétersb., Ser. VI. iii. II. (1835) 177.
Camps I, 500 ft., and III to VI, 2100 to 2500 ft.
Distrib. Tropical Asia.

THYSANOLÆNA AGROSTIS, Nees, in Edinb. New Phil. Journ. xviii. (1835) 180.
Camp VI *a*, 3100 ft.
Distrib. Tropical Asia.

LEPTASPIS URCEOLATA, R. Br. in Benn. Pl. Jav. rar. 23, t. 6.
Canoe Camp, 150 ft.
Distrib. Ceylon, Malay Peninsula and Islands.

COIX LACRYMA-JOBI, Linn. Sp. Pl. 972.
Canoe Camp, 150 ft.
Distrib. Tropical Asia.

IMPERATA EXALTATA, Brongn. Voy. Coq., Bot. 101.
Canoe Camp, 150 ft., and Camps IX to X, 5500 to 6700 ft.
Distrib. Mergui, Malay Peninsula and Islands, New Hebrides, and Tropical America.

POLLINIA CILIATA, Trin. in Mém. Acad. Pétersb. Sér. VI. ii. (1833) 306.
Camp VI *a*, 3100 ft.
Distrib. India.

POLLINIA GRATA, Hack. Monog. Androp. 175.
Camp VI *c*, 5500 ft.
Distrib. Himalaya, Malay Peninsula, Java, and China.

POLLINIA FULVA, Benth. Fl. Austral. viii. 526.
Var. HIRTA, Ridl., var. nov. Leaves and culms hairy.
Camps VIII to IX, 4900 to 5500 ft.
Distrib. Australia.

SACCHARUM ARUNDINACEUM, Retz. Obs. iv. 14.
Camps I, 500 ft.; IX, 5500 ft.
"Silvery pink." An unusual altitude for this plant.
Distrib. India, Malaya, China.

ISCHÆMUM RUGOSUM, Salisb. Ic. Stirp. rar. i. t. 1.
Camp III, 2500 ft.
A dwarf form, only about 6 inches high.
Distrib. India, Malaya, China.

ISCHÆMUM DIGITATUM, Brongn. Voy. Coq., Bot. 70, t. 13.
Camps VI *a*, 3100 ft., and VIII to IX, 4900 to 5500 ft.
Distrib. Malay Islands and Polynesia.

MUEHLENBERGIA ARUNDINELLA, Ridl. in Kew Bull. (1913), 267.
Camps III to IX, 2500 to 5500 ft.; Camp XIII, 10,500 ft. A dwarf form.
Distrib. British New Guinea.

DANTHONIA SEMI-ANNULARIS, R. Br. Prodr. 177.
Camps XIII to XIV, 10,500 to 12,500 ft.
Distrib. Australia.

TRISETUM SUBSPICATUM, Beauv. Agrost. 88.
Camps XIII to XIV, 10,500 to 12,500 ft.
The glumes in the single specimen are very strongly keeled.
Distrib. Alpine, Arctic, and Antarctic regions.

TRISETUM LATIFOLIUM, Ridl., sp. nov.
Herba valida, ultra 60 cm. alta. *Culmus* 3 mm. crassus. *Folia* lanceolata, acuminata, basi lata, 15 cm. longa, 1 cm. lata, pubescentia, ligula ciliis longis albis. *Culmus* superne teres, glaber, 30 cm. longus. *Panicula* densa, erecta, 14 cm. longa, 2·5 cm. lata, ramis erectis scabridis, pedicellis erectis brevibus. *Spiculæ* pallide purpurascentes, 4 mm. longæ; rhachilla ad basin albo-ciliata. *Gluma* i. lanceolata, acuta, carina elevata scabrida, nervis 2 elevatis; ii. multo longior, lanceolata, lata, cuspidata, trinervis, nervis elevatis 4 mm. longa; iii. tenuior, paleacea, lanceolata, enervis æqualis; iv. lanceolata, atropurpurea, enervis, apice obscure bifida, arista terminali spiculæ æquilonga inferne horizontali torta supra medium abrupte deflexa, recta brunnea. *Palea* quam gluma sua brevior, tenuis, late lanceolata. *Stamina* 3 oblonga, ocrea. *Stigmata* plumosa, purpurea. *Caryopsis* elliptica, complanata, late nec profunde sulcata, flavescens. *Lodiculi* apice bifidi.
Camps IX and X, 5600 to 6400 ft., and Camps VII and VIII, 3600 to 4900 ft.

DESCHAMPSIA KLOSSII, Ridl. in Kew Bull. (1913), 267.
Camps XIII to XIV, 10,500 to 12,500 ft.
Distrib. Endemic in New Guinea.

DESCHAMPSIA FLEXUOSA, Trin. in Bull. Sc. Acad. Pétersb. i. (1836) 66.
Camp XII, 11,000 ft. (forma vivipara).
Distrib. Temperate Europe and Asia.

ELEUSINE INDICA, Gaertn. Fruct. i. 8.
Camp VI *b*, 3900 ft.
Distrib. Cosmopolitan.

LOPHATHERUM GRACILE, Brongn. in Duperr. Voy. Bot. 50, t. 8.
Camps I to III, 500 to 2500 ft.
Distrib. India, Malaya, China, Japan.

CENTOTHECA LAPPACEA, Desv. in Nouv. Bull. Soc. Philom. ii. (1810) 189.
Canoe Camp and Camps III to VI, 150 to 2500 ft.
Distrib. India, Malaya, China, Polynesia, and Tropical Africa.

POA PAPUANA, Stapf, in Hook. Ic. Plant. t. 2607.
Camps XIII to XIV, 10,500 to 12,500 ft.
Distrib. Endemic in New Guinea.

Poa minimiflora, Stapf, in Hook. Ic. Plant. t. 2608.
Camp XIII, 10,500 ft.
Distrib. Endemic in New Guinea.

Poa nivicola, Ridl., sp. nov.
Herba cæspitosa. *Folia* basalia brevia, angusta, linearia, acuminata, subacuta, 7 cm. longa, 1 mm. lata, ligula nulla; caulina lanceolata, acuminata, 3 cm. longa, 4 mm. lata. *Culmus* longus vel minor, teres. *Panicula* laxa, ramis paucis tenuissimis 2–4 mm. longis. *Spiculæ* 8–10 in ramo, pedicellis gracillimis, trifloræ, rhachilla producta. *Glumæ* distichæ, i. et ii. lanceolatæ, acutæ, coriaceæ, purpurascentes, pubescentes, 4 mm. longæ; iii. (florens) lanceolata, acuta, nervis 4 ad apicem confluentibus. *Palea* lanceolata, bicarinata, carinis in apice 2 productis. *Staminum* antheræ brunneæ. *Stigmata* plumosa, gossipina, alba. *Lodiculi* breves, late lanceolatæ, cuspidatæ.
Camps XIII to XIV, 10,500 to 12,500 ft.
Near *P. alpina*, Linn., but the spikelets are narrower and the flowering glumes not silky.

Poa luzoniensis, Merrill, in Philipp. Journ. Sc. i. Suppl. (1906) 180.
Distrib. Utakwa Valley, with no precise locality.
Identical with a plant from the mountains of Java [at Nyadasar at 2000 metres (Koorders) and probably Tosari (Hullett)]. I have seen no Philippine specimens, but the description by Merrill suits this plant.

Dendrocalamus Forbesii, Ridl. in Journ. Bot. xxiv. (1886) 16.
Distrib. British New Guinea.

FILICES.

(By H. N. Ridley.)

Cyathea Macgregorii, F. Muell. in Trans. R. Soc. Vict. i. (1889) 40.
The specimens have remarkably scaly young fronds.
Camp XIII, 10,500 ft.
Distrib. Endemic in New Guinea.

Cyathea Klossii, Ridl., sp. nov.
Caudex gracilis, 2 cm. diametro, squamis elongatis acuminatis 5 mm. longis tecta. *Frondes* pinnatæ, 60 cm. longæ, 13 cm. latæ, stipitibus 10 cm. longis basi squamis acuminatis armatis superne purpureo-brunneis rudibus. *Rhachis* superne canaliculata, hirsuta, capillis atris, subtus squamis copiosis tecta. *Pinnæ* in media fronde longiores, 5 cm. longæ, 1·5 cm. latæ, papyraceæ, glabræ, subtus glaucescentes, lobis 11-paribus oblongis obtusis ad $\frac{3}{4}$ latitudinis pinnæ fissis, nervis ad 12

sæpius bifurcatis. *Sori* ad bases nervorum prope costam biseriati. *Indusium* globosum, apice irregulariter fissum.

Camps III to IV, 1100 to 2500 ft.

Allied to *C. Christi*, Copel., of the Philippines; differing in its simply pinnate leaves and scaly rhachis.

CYATHEA VERSTEEGII, Christ, in Nova Guinea, viii. 161.

Camp VI *b*, 3900 ft.

Distrib. Endemic in New Guinea.

The rhachis is more pubescent and the pinnæ are deeper cut than in a type-specimen in Herb. Kew.

ALSOPHILA SAPARUENSIS, Alderweldt and Rosenburgh, Malayan Ferns, p. 38.

Camps IX to X, 5500 to 6700 ft.

Distrib. Buru and Saparua.

ALSOPHILA PAPUANA, Ridl., sp. nov.

Frondes magnæ, 115 cm. longæ, stipitibus longis 5 mm. crassis glabris parce spinulosis. *Pinnæ* alternæ, subremotæ, 8 cm. distantes, 30 cm. longæ, glabræ. *Pinnulæ* 8 cm. longæ, 2 mm. latæ, lanceolatæ, longe acuminatæ, subcoriaceæ, glabræ, subtus pallidiores, petiolis 2 mm. longis, lobis 20 oblongis obtusis subtruncatis crenulatis ultra dimidium fissis, nervis 12 sæpe bifurcatis. *Sori* 12 in medio nervorum. *Indusium* parvum, mox disruptum.

Camp III, 2500 ft.

The indusium forms at first a small globose covering to the sporanges, but soon breaks up into very minute fragments. Near *A. glabra*, Hook., but the pinnulæ are all petiolate, and the indusium is different, the sori being hardly arranged in V-shape.

GLEICHENIA DICARPA, R. Br. Prod. 161.

Camps X to XI, 6700 to 8300 ft.

Distrib. Malay Islands.

GLEICHENIA MONTICOLA, Ridl., sp. nov.

Stipes fragilis, 11 cm. longus, squamis lanceolatis acuminatis ad basin læte brunneis. *Rami* 2, dichotomi, bis ramosi, rhachi squamis lanceolatis apice albo-lanuginosis tecta. *Frondes* 9 cm. longæ, recurvæ, 5 cm. latæ, siccæ atrobrunneæ, subtus glaucæ, glabræ, lobis ovatis obtusis valde coriaceis, marginibus multo incurvis 2 cm. longis, nervis elevatis ramosis ultra 5.

Camps XIII to XIV, 10,500 to 12,500 ft.

A most distinct plant with the habit of *G. circinata*, Sw., but the leaflets are much larger and ovate.

Gleichenia vestita, Blume, Enum. Pl. Jav. 249.
Camps XIII to XIV, 10,500 to 12,500 ft.
Distrib. Malaya.

Gleichenia arachnoides, Mett. in Ann. Lugd. Bat. i. (1863) 47.
Camp VI *c*, 5500 ft.
Distrib. Malay Islands.

Dicksonia chrysotricha, T. Moore, Ind. Fil. 311.
Camp VI *c*, 5500 ft.
Distrib. Java, Celebes, and Philippines. A new record for New Guinea.

Hymenophyllum badium, Hook & Grev. Syn. Fil. 60.
Camp III, 2500 ft.
Distrib. Himalaya to Malaya.

Hymenophyllum demissum, Sw. in Schrad. Journ. 1800, ii. (1801) 100; Hook. & Baker, Syn. Fil. 61.
Camp VI *a*, 3100 ft.
Distrib. Malaya, Australia, New Zealand.

Hymenophyllum formosum, Brack. Expl. Exp. xvi. 268; Van Den Bosch, Hymen. Jav. 59, t. 47–48.
Camps X to XI, 6700 to 8300 ft.
Distrib. Malaya, Australia, Polynesia.

Hymenophyllum multifidum, Sw. in Schrad. Journ. l. c. 102; Hook. & Baker, Syn. Fil. 69.
Camps XI to XIII, 8300 to 10,500 ft.
Distrib. Celebes, Philippines, Australia, New Zealand.

Hymenophyllum Bismarckianum, Christ, in Lauterb. & K. Schum. Fl. Deutsch. Schutzgeb. Südsee, Suppl. 34.
Camps X to XI, 6700 to 8300 ft.
Distrib. Endemic in New Guinea.

Trichomanes auriculatum, Blume, Enum. Pl. Jav. 225.
Camp III, 2500 ft.
Distrib. Malay Peninsula and Archipelago, Japan.

Trichomanes meifolium, Bory, ex Willd. Sp. Pl. v. 509.
Camp VI *b*, 3900 ft.
Distrib. Réunion, Malaya, Polynesia.

Trichomanes fœniculaceum, Bory, l. c. 511; Hook. & Baker, Syn. Fil. 88.
Camp VI *b*, 3900 ft.
Distrib. Mascarenes, Malaya, Australia.

TRICHOMANES PLUMA, Hook. Syn. Fil. 466.
Camps XI to XII, 8300 to 11,000 ft.
Distrib. Malay Peninsula.

TRICHOMANES PALLIDUM, Blume, Enum. Pl. Jav. 225; Hook. Syn. Fil. 80.
Camp VI *b*, 3900 ft.
Distrib. Malay Peninsula, Java.

PROSAPTIA CONTIGUA, Sw. Syn. Fil. 130.
Camp III, 2500 ft.
Distrib. India, Malay Peninsula and Islands.

PROSAPTIA SCHLECHTERI, Christ, in Lauterb. & K. Schum. Fl. Deutsch. Schutzgeb. Südsee, Suppl. 41, t. 1. fig. B.
Camp VI *c*, 5500 ft.
Distrib. Endemic in New Guinea.

HUMATA PEDATA, J. Sm. in Hook. Journ. Bot. iii. (1841) 416.
Canoe Camp, 150 ft.; Camp VI *a*, 3100 ft.
Distrib. India, Malaya, China, Japan, Australia, and Mascarenes.

DAVALLIA PINNATA, Hook. Syn. Fil. 98.
Camp III, 2500 ft.
Var. GRACILIS, Smith.
Camps IX to XI, 5500 to 8300 ft.
Distrib. Malaya and Polynesia.

ODONTOSORIA RETUSA, Hook. Sp. Fil. i. t. 52 A.
Camp VI *a*, 3100 ft.
Distrib. Malaya and Polynesia.

ODONTOSORIA CHINENSIS, J. Sm. in Seem. Bot. Voy. 'Herald,' 430.
Camps IX to X, 5500 to 6700 ft.
Distrib. Mascarenes, India, Malaya, China, and Polynesia.

ODONTOSORIA TENERA, Ridl., sp. nov.

Rhizoma gracillimum, elongatum, frondibus dissitis. *Frondes* graciles, pinnatæ, herbaceæ, glabræ, 16–20 cm. longæ, 2 cm. latæ. *Stipes* tenuis, basi purpureus, superne pallidus. *Pinnulæ* 1 mm. longæ, pallide virides, cuneatæ, breviter pedicellatæ, lobis 5 linearibus in latere inferiore apice rotundatis emarginatis. *Sori* infra apices singuli, ex apicibus nervorum orti. *Indusium* squamiforme, ovatum.

Camp VI *b*, 3900 ft.

This pretty little fern is almost of the habit of a *Hymenophyllum*, the frond is quite

simple, with delicate green pinnules, the lower edge of which is quite straight, the upper cut into five linear lobes.

Lindsaya repens, Bedd. Handb. Ind. Ferns, 74.
Camps III, 2500 ft., and IX to X, 5500 to 6700 ft.
Distrib. Mauritius, India, Malaya, and Polynesia.

Lindsaya scandens, Hook. Syn. Fil. 106.
Camps VII to VIII, 3600 to 4900 ft.
Distrib. Malaya.

Lindsaya flabellulata, Hook. Syn. Fil. 107.
Camp VI *c*, 5500 ft.
Distrib. Tropical Asia and Australia.

Lindsaya trapeziformis, Hook. Syn. Fil. 107.
Camps III to IV, 1100 to 2500 ft.
Distrib. Ceylon, Malaya, S. America.

Lindsaya rigida, Hook. Syn. Fil. 108.
Camp III, 2500 ft.
Distrib. Malaya.

Lomaria procera, Hook. Syn. Fil. 179.
Camps VI *b* and VI *c*, 3900 to 5500 ft.
Distrib. Malaya.

Lomaria capensis, Willd. Sp. Pl. v. 291.
Var. squamulosa, Ridl., nov. var.—*L. squamulosa*, Desv.
Camp VI *c*, 5500 ft.
A curious dwarf compact Alpine fern, which I have also seen from Mt. Knutsford and the Owen Stanley range, collected by Macgregor.
Distrib. Malaya, Polynesia, Tropical Africa, and America.

Diplazium umbrosum, Bedd. Handb. Ind. Ferns, 188.
Camp III, 2500 ft.
Distrib. Eastern Tropics.

Anisogonium decussatum, Presl, Tent. 116, t. 4. fig. 13.
Canoe Camp, 150 ft.
Distrib. Malaya, Polynesia, Australia, and Africa.

ANISOGONIUM CORDIFOLIUM, Bedd. Ferns Brit. Ind. t. 331.
Canoe Camp, 150 ft.
Distrib. Malaya.

ASPIDIUM PACHYPHYLLUM, Hook. Syn. Fil. 297.
Camp III, 2500 ft.
Distrib. Malaya.

ASPLENIUM SQUAMULATUM, Hook. Syn. Fil. 192.
Camp III, 2500 ft.
Distrib. Malay Peninsula and Islands.

ASPLENIUM VITTÆFORME, Cav. Praelect. 1801, 255.
Canoe Camp, 150 ft.
Distrib. Malaya.

ASPLENIUM TENERUM, Forst. f. Prodr. 80.
Canoe Camp, 150 ft.
Distrib. Malaya.

ASPLENIUM COMOSUM, Christ, in Lauterb. & K. Schum. Fl. Deutsch. Schutzgeb. Südsee, 127.
Camp VI *b*, 3900 ft.
Distrib. Endemic in New Guinea.

ASPLENIUM CAUDATUM, Forst. f. Prodr. 80.
Camps VII to VIII, 3600 to 4900 ft.
Distrib. Tropical Asia, Africa, and America.

ASPLENIUM AFFINE, Sw. in Schrad. Journ. 1800, II. (1801) 56.
Camp VI *b*, 3900 ft.
An unusually pubescent hairy form.
Distrib. Mascarenes, Malaya, and Polynesia.

ASPLENIUM RUTÆFOLIUM, Kunze, in Linnæa, x. (1836) 521.
Camp III, 2500 ft.
Distrib. S. Africa, India, Malaya, Japan, Polynesia.

ASPLENIUM ALATUM, Ridl., sp. nov.
Frondes 60 cm. longæ, 26 cm. latæ. *Stipes* frondi æquilongus, basi alatus. *Rhachis* in dorso squamis magnis lanceolatis acuminatis brunneis tecta. *Frondium* lobi circiter 9, oblongi, lanceolati, acuminati, cuspidati, herbacei, glabri squamis in dorso costæ exceptis, maximus 15 cm. longus, 3 cm. latus, infimus inæqualiter bilobus, summus latus, trilobus, nervis et nervulis liberis conspicuis, areolis

magnis. *Frondes* fertiles angustiores. *Sori* copiosi, in lineas singulas in utroque latere costæ dispositi et approximati. *Indusium* reniforme, persistens.

Canoe Camp, 150 ft.

Allied to *A. decurrens*, Presl, but differing in the stipes and the rhachis being covered with brown scales.

LASTRÆA MACGREGORII, Ridl. comb., nov. (*Nephrodium Macgregori*, Baker, Summary, 60 (1892); *N. simulans*, Baker, in Ann. Bot. v. (1891) 60, non alior.; *Dryopteris conterminoides*, Christen. Ind. Fil. 258).

Camps IX to X, 5500 to 6700 ft.

Distrib. Endemic in New Guinea.

LASTRÆA BECCARIANA, Ridl., comb. nov. (*Nephrodium Beccarianum*, Ces. Fil. Becc. Born. 23).

Camp VI *a*, 3100 ft.

Distrib. Malaya.

LASTRÆA SPARSA, T. Moore, Ind. Fil. 87, 104.

Camps I to III, 500 to 2500 ft.; VI *b*, 3900 ft., and VI *c*, 5500 ft.

Distrib. India and Malaya.

LASTRÆA KLOSSII, Ridl., sp. nov.

Frondes 30 cm. longæ, 5·5 cm. latæ, pinnatæ. *Stipes* gracilis, atro-purpureus, pubescenti-hirsutus, in dorso squamis latis ovatis tenuibus paucis munitus. *Rhachis* gracilis, superne pilis et squamis rufo-brunneis tecta. *Pinnæ* basin versus vix breviores, alternæ, coriaceæ, 2·5 cm. longæ, 7 mm. latæ; lobi fere ad costam fissi oblongi, obtusi, integri, nervis 8, costa parce squamosa, squamis rufo-brunneis. *Sori* plures in nervis in medio lobo congesti. *Indusium* reniforme, brunneum.

Camp VI *c*, 5500 ft.

An elegant fern of the habit of *Nephrodium cucullatum*, Blume.

MESOCHLÆNA POLYCARPA, Bedd. Ferns Brit. Ind. Suppl. 13.

Camps VIII to IX, 4900 to 5500 ft.

Distrib. Malaya.

NEPHRODIUM CUCULLATUM, Baker, in Hook. Syn. Fil. 290.

Camp VI *a*, 3100 ft.

Distrib. Mascarenes, Indo-Malaya, Polynesia.

NEPHRODIUM GLANDULOSUM, Hook. Sp. Fil. iv. 76.

Canoe Camp, 150 ft., and Camp VI *a*, 3100 ft.

Distrib. Malay Peninsula and Java.

NEPHRODIUM PENNIGERUM, Presl, Rel. Haenk. i. 35.

Canoe Camp, 150 ft.

Distrib. Africa, Indo-Malaya.

NEPHRODIUM FEROX, T. Moore; Hook. Syn. Fil. 294.
Camps VIII to IX, 4900 to 5500 ft.
Distrib. India, Malaya.

NEPHRODIUM BRACHYODON, Hook. Syn. Fil. 295.
Canoe Camp, 150 ft.
Distrib. Malaya, S. America.

NEPHRODIUM ARBUSCULA, Desv. in Mém. Soc. Linn. Par. vi. (1827) 253.
Camps X to XI, 6700 to 8300 ft.
Distrib. S. India, Mascarenes, and Malaya.

NEPHROLEPIS DAVALLOIDES, Kunze, ex Hook. Syn. Fil. 302.
Camps VI *a* and VI *b*, 3100 and 3900 ft.
Distrib. Malay Peninsula, Java.

NEPHROLEPIS ACUTA, Presl, ex Hook. Sp. Fil. iv. 153.
Camp VI *b*, 3900 ft.
Distrib. Africa, Indo-Malaya.

NEPHROLEPIS CORDIFOLIA, Presl, Tent. 79.
Canoe Camp, 150 ft.; Camps VI *a* and VI *b*, 3100 to 3900 ft.
Distrib. All tropical countries.

OLEANDRA MUSIFOLIA, Presl, Epim. 42.
Camps IX to XI, 5500 to 8300 ft.
Distrib. India, Malaya.

OLEANDRA CUSPIDATA, Baker, in Becc. Males. iii. 44.
Camps I to III, 500 to 2500 ft., and VI *a* and VI *b* to VII, 3100 to 3900 ft.
Distrib. Endemic in New Guinea.

OLEANDRA WERNERI, Rosenst. in Fedde, Rep. v. 40.
Camps III to VI *a*, 2500 to 3100 ft.
Distrib. Endemic in New Guinea.

PHEGOPTERIS ERUBESCENS, J Sm. Hist. Fil. 233.
Camps VIII to XI, 4900 to 8300 ft.
Distrib. India, Malaya.

GONIOPTERIS RIGIDA, Ridl., sp. nov.
Frondes 45 cm. longæ, 8 cm. latæ, stipitibus cum rhachi dense rufo-hirtis. *Pinnæ* 5 cm. longæ, 1 cm. latæ, sessiles, approximatæ, coriaceæ, superne virides, breviter

ad dimidium lobatæ, lobis rotundatis, marginibus subtus incurvis obtusis, nervis 10 superne depressis subtus elevatis hirtis pilis atris. *Sori* in medio nervorum orti, a costa et marginibus æquidistantes, parvi.

Camp VI *c*, 5500 ft.

A very distinct, stiff and hairy plant, with the pinnæ cut very shortly into rounded lobes, about 32 in number.

Goniopteris rudis, Ridl., sp. nov.

Frondes circiter 60 cm. longæ, stipitibus basi squamis lanceolatis acuminatis tectis et cum rhachi pilis brevibus rigidis rufo-brunneis tectis duplo longiores. *Pinnæ* 9, integræ, oblongæ, subabrupte cuspidatæ, sessiles, oppositæ, glabræ, 16 cm. longæ, 4 cm. latæ, herbaceæ, basi latæ, breviter cuneatæ, cuspide pugioniformi 2 cm. longo, nervis plurimis, nervulis 5–6 gracilibus. *Sori* ex apicibus nervulorum orti, orbiculares, plurimi.

Camps I to III, 500 to 2500 ft.

Nearest to *G. arfakiana*, Ces., but the sori do not cover the whole surface of the fronds.

Polypodium hirtellum, Blume, Enum. Pl. Jav. ii. 122.

Camps IX to X, 5500 to 6700 ft.

Distrib. Ceylon, Malaya.

Polypodium inconspicuum, Blume, Enum. Pl. Jav. ii. 130.

Camps III to VIII, 2500 to 4900 ft.

Distrib. Malay Islands.

Polypodium fasciatum, Presl, Tent. 180.

Camp III, 2500 ft., and Camp VI *b*, 3900 ft.

Distrib. Java, Sumatra.

Polypodium subselligueum, Baker, in Journ. Bot. xxviii. (1890) 107.

Camp VI *b*, 3900 ft.

Distrib. Endemic in New Guinea.

Polypodium frigidum, Ridl., sp. nov.

Rhizoma 4 mm. crassum, squamis lanceolatis acuminatis pallide brunneis tectum. *Frondes* coriaceæ, 17 cm. longæ, integræ, glabræ, lineares, angustæ, versus apicem et basin acuminatæ, obtusæ, 2 mm. longæ, stipitibus distinctis gracilibus 4 cm. longis fugaciter furfuraceo-pubescentibus. *Sori* rotundato-elliptici, biseriati, in medio laminæ siti (apice et basi frondis sterilibus), costa crassiuscula, nervis celatis.

Camps XIII to XIV, 10,500 to 12,500 ft.

Allied to *P. subselligueum*, Baker, but much smaller and narrower, the blade distinctly separate from the pubescent stipes.

Polypodium carstenszense, Ridl., sp. nov.

Rhizoma squamis tenuibus lanceolatis acuminatis pallide brunnescentibus tectum. *Frondes* simplices, petiolatæ, petiolis teretibus pubescentibus 7–8 cm. longis gracilibus; lamina linearis, acuminata, basi cuneata, subcoriacea, margine superne undulata, basin versus breviter lobata lobis obtusis latis, 20 cm. longa, 1·5 cm. lata, nervis circiter 80 undulatis, nervulis 6 brevibus. *Sori* elliptici, parvi, subimmersi, 6 cum quoque nervo in apicibus nervulorum orti.

Camps XI to XIV, 8300 to 10,500 ft.

Allied to *P. sumatranum*, Baker, differing in the distinctly lobed fronds and flexuous nerves.

Polypodium petiolatum, Ridl., sp. nov.

Rhizoma gracile, squamis lanceolatis acuminatis argenteis tectum. *Frondes* simplices, petiolatæ, petiolis glabris canaliculatis gracilibus 4–8 cm. longis; lamina oblanceolata, basi attenuata, coriacea, 12 cm. longa, 1·5–1·8 cm. lata, margine recurvo obscure undulato nec lobato, nervis pluribus gracilibus rectis, nervulis obscuris brevibus 6 in utroque nervo. *Sori* orbiculares, majusculi, in apicibus nervulorum juxta nervum orti.

Camps IX to X, 5500 to 6700 ft.

Allied to the last species, but with different scales on the rhizome, a glabrous channelled petiole and straight nerves, shorter nervules and larger sori, which are elevated on the upper surface.

Polypodium Stanleyanum, Baker, in Journ. Bot. xxviii. (1890) 107.

Camps XIII to XIV, 10,500 to 12,500 ft.

Distrib. Endemic in New Guinea.

Polypodium papuanum, Ridl., sp. nov.

Herba parva, cæspitosa, 5 cm. alta. *Frondes* sessiles, lineares, angustæ, 1 mm. latæ, paullo acuminatæ, obtusæ, versus basin paullo attenuatæ, subcoriaceæ, pilis atris paucis munitæ, costa elevata, nervis celatis. *Sori* in apice copiosi, elliptici, primo distantes, mox congesti, laminam tegentes.

Camp III, 2500 ft.

Allied to *P. universe*, Baker, but less coriaceous and less hairy, with many more sori.

Polypodium biseriale, Ridl., sp. nov.

Herba cæspitosa, rhizomate squamis ovatis obtusis brunneis tecto. *Frondes* integræ, lanceolatæ, acuminatæ, glabræ, versus basin attenuatæ, marginibus undulatis, 14 cm. longæ, 4–5 cm. latæ, pilis brevissimis atris dissitis, nervis obscuris undulatis simplicibus, stipitibus gracilibus teretibus pubescentibus. *Sori* rotundi, prope costam a margine remoti, 1 mm. lati, 2–4-ni in lineas transversas dispositi.

Camps VIII to IX, 4900 to 5500 ft.

Near *P. oleandroides*, Baker, of New Guinea, but differing in having the sori in two to four rows instead of a single one, covering the greater part of the frond but not the apex. From *P. pleiosoroides*, Copeland, of the Philippines, it differs in having a pubescent stipes and undulate margin.

POLYPODIUM ALCICORNE, Ridl., sp. nov.

Planta cæspitosa, 20–35 cm. alta, rhizomate crassiusculo squamis pallide brunneis lanceolatis acuminatis tecto. *Stipes* 10 cm. longus, basi teres, superne complanatus, alatus. *Frondes* ter aut quater furcatæ, glabræ, coriaceæ, complanatæ, siccæ pallidæ, segmentis ad basin 4–5 mm. latis, terminalibus 2–2·5 longis, 2 mm. latis, soriferis linearibus apice obtusis angustatis. *Sori* in seriebus duobus prope costam subremoti, rotundati vel elliptici, atrobrunnei.

Camp I, 700 ft.; Camps III to VIII, 2500 to 4900 ft.

Allied to *P. subdichotomum*, Rac., of Sumatra, but much more branched and glabrous.

POLYPODIUM CLAVIFER, Hook. Sp. Fil. iv. 176; Syn. Fil. 334.

Camp VI *b*, 3900 ft.

Distrib. Borneo.

POLYPODIUM CUCULLATUM, Nees, in Nova Act. xi. (1823) 121.

Camp VI *c*, 5500 ft. (a typical form); Camp XIII, 10,500 ft. A very tall and large form, resembling specimens from Samoa. It should probably be specifically distinguished.

Distrib. Malaya.

POLYPODIUM STREPTOPHYLLUM, Baker, in Journ. Bot. xvii. (1879) 42.

Camp III, 2500 ft.

Distrib. Ceylon, Malaya.

POLYPODIUM CELEBICUM, Blume, Enum. Pl. Jav. ii. 127.

Camp III, 2500 ft.

Distrib. Malaya.

POLYPODIUM OBLIQUATUM, Blume, Enum. Pl. Jav. ii. 128.

Camp III, 2500 ft.

Distrib. Indo-Malaya.

POLYPODIUM REPANDULUM, Mett. Pol. 50.

Camps III to VIII, 2500 to 4900 ft.

Distrib. Malaya.

POLYPODIUM TENUISECTUM, Blume, Enum. Pl. Jav. ii. 134.

Camps III to VIII and Camp VI *b*, from Camps IX to XI, 2500 to 8300 ft.

Apparently common.

Distrib. Malay Peninsula and Java.

POLYPODIUM SECUNDUM, Ridl., sp. nov.

Planta cæspitosa, radicibus copiosis hirtis. *Frondes* 15–18 cm. longæ, 2·5 cm. latæ, siccæ brunneæ. *Stipes* 3 cm. longus, dense barbatus, rhachi et costa barbatis. *Pinnæ* simplices, unilaterales, recurvæ, 1·5 cm. longæ, in margine superiore tantum lobatæ; lobi ad costam fissi, parce hirti, obovati, apice rotundati, 1 mm. longi, basales et apicales breviores. *Sori* parvi, ad basin loborum siti, hirti.

Camps X to XI, 6700 to 8300 ft.

Allied to *P. tenuisecta*, Blume, but cæspitose, with lobes on the upper side of the costa only. The lobes are smallest at the base, and also diminish in size towards the tips. They are oblong to obovate or nearly spathulate, narrowed towards the base.

POLYPODIUM PENSILE, Ridl., sp. nov.

Frondes pendulæ, 70 cm. longæ, dense rufo-barbatæ, petiolo 5–6 cm. longo; lamina subcoriacea, rufo-barbata (præsertim in rhachi), pinnata, lobis plurimis (ad 70 in utroque latere) linearibus breviter acuminatis obtusis basi in rhachi decurrentibus 2·5 cm. longis 3·4 mm. latis apice et basi decrescentibus, nervis celatis. *Sori* orbiculares, marginales, plerumque 6 in utroque margine, immersi.

Camps IX to X, 5500 to 6700 ft.

Near *P. celebicum*, Blume, but with remarkable long pendulous fronds of an almost fleshy nature, the lobes distinct, but decurrent at the base of the rhachis, so as to form narrow wings on it.

POLYPODIUM WOLLASTONII, Ridl., sp. nov.

Rhizoma longum, gracile, squamis ovatis acuminatis brunneis dissitis caducis tectum. *Frondes* remotæ, 45 cm. longæ, 10 cm. latæ, pinnatæ, subcoriaceæ. *Stipes* 12 cm. longus, gracilis, purpureus, cum rhachi minute pubescens. *Pinnæ* 5–6 cm. longæ, ad costam hirtæ, lobis lanceolato-linearibus falcatis basi decurrentibus parce hirtis 7 mm. longis 2 mm. latis apicem versus decrescentibus, uno basali longiore erecto, apice serrato, nervis furcatis. *Sori* 2–4 ad basin loborum siti, sæpe lobos fere tegentibus.

Camp III, 2500 ft.

The whole plant except the stipes dries pale green.

POLYPODIUM ARGYROPUS, Ridl., sp. nov.

Rhizoma 4 mm. crassum, squamis lanceolatis acuminatis argenteis undique dense tecto. *Frondes* steriles coriaceæ, lanceolatæ, acuminatæ, basi cuneatæ, 10 cm. longæ, 2–2½ cm. latæ; marginibus incurvis, nervis 40 vel ultra in utraque pagina

conspicuis, petiolo 2–7 cm. longo terete glabro. *Frondes* fertiles lineares, coriaceæ, 13 cm. longæ, 2 mm. latæ, glabræ, nervis celatis, petiolo 5 cm. longo terete. *Sori* per totam longitudinem laminæ biseriati, elliptici, majusculi.

Camps VI *b* and VII to VIII, 3900 to 4900 ft.

Allied to *P. Bakeri*. The rhizome is covered with beautiful silvery white scales; the sterile fronds resemble those of a *Selliguea*, being stiffly coriaceous and drying yellow.

Pleopeltis renifera, Ridl., sp. nov.

Rhizoma gracile, squamis pallidis angustis acuminatis tectum, circiter 1 mm. crassum. *Frondes* steriles anguste spathulatæ, apice rotundatæ, coriaceæ, 5 cm. longæ, 3 mm. latæ; fertiles lineares, obtusæ, glabræ, marginibus undulatis, 15 cm. longæ, 2 mm. latæ, costa prominula, nervis celatis, stipite gracili in laminam gradatim dilatato. *Sori* circiter 16, rotundi, alterni vel oppositi, remoti.

Camp VI *a*, 3100 ft.

This resembles *P. stenopteris*, Baker, of Borneo, but the lamina is shorter and wider, rounded at the tip and dilated upwards, not linear acuminate.

Pleopeltis phymatodes, T. Moore, Ind. Fil. lxxviii.

Camp VI *a*, 3100 ft.; Camps VIII to IX and XII to XIII, 4900 to 10,500 ft.

Distrib. Old World tropics.

Pleopeltis palmata, T. Moore, Ind. Fil. 347.

Camps VI *a* to VI *b*, 3100 to 3900 ft.; and Camps X to XI, 6700 to 8300 ft.

Distrib. Malay Islands.

Pleopeltis affinis, T. Moore, Ind. Fil. 344.

Camp VI *a*, 3100 ft.

Distrib. Malay Islands.

Drynaria rigidula, Bedd. Ferns Brit. Ind. t. 314.

Canoe Camp, 150 ft.

Distrib. Malaya, Australasia.

Dipteris Horsfieldii, Bedd. Ferns Brit. Ind. t. 321.

Canoe Camp, 150 ft.; Camp VI *b*, 3900 ft.

Distrib. Malay Islands, Polynesia.

Loxogramme avenia, Baker, in Hook. Syn. Fil. 388.

Camps I to III, 500 to 2500 ft.

Distrib. Malaya.

Antrophyum semicostatum, Blume, Enum. Pl. Jav. ii. 110.

Camp VI *a*, 3100 ft.

Distrib. Malaya, India.

ELAPHOGLOSSUM LAURIFOLIUM, T. Moore, Ind. Fil. xvi; Bedd. Ferns South India, t. 200.
Camps VI *a* to VI *b*, 3100 to 3900 ft.
Distrib. Indo-Malaya, South America.

GYMNOPTERIS REPANDA, Christ, Farnkr. 50, var. QUOYANA (Ridl.) (*Acrostichum Quoyanum*, Gaud. Voy. Urville, Bot. 306, t. 3).
Canoe Camp, 150 ft.
Distrib. Seychelles, Malaya, Polynesia.

GYMNOPTERIS SPICATA, Presl, Tent. 244, t. 11. f. 7.
Camp VI *b*, 3900 ft.; Camps IX to X, 5500 to 6700 ft.
Distrib. Malaya.

ANGIOPTERIS EVECTA, Hoffm. in Schk. Krypt. Gew. t. 151.
Canoe Camp, 150 ft.
Distrib. Madagascar, Indo-Malaya, and Australia.

MARATTIA FRAXINEA, Sm. Pl. Ic. Ined. ii. t. 48.
Camps VIII to IX, 4900 to 5500 ft.
Distrib. Tropics of Old World.

OPHIOGLOSSUM PENDULUM, Linn. Sp. Pl. ed. 2, 1518.
Camp III, 2500 ft.; Camp VI *b*, 3900 ft.
Distrib. Eastern tropics.

LYCOPODIACEÆ.

(By H. N. RIDLEY.)

LYCOPODIUM FILIFORME, Roxb. Fl. Ind. (Ed. Clarke) 741.
Camp VI *a*, 3100 ft.
Distrib. India to Malaya.

LYCOPODIUM PINIFOLIUM, Blume, Enum. Pl. Jav. ii. 264.
Camp VI *b*, 3900 ft. A small form.
Distrib. Java, Borneo, New Guinea.

LYCOPODIUM CORALIUM, Spring, in Miq. Pl. Junghuhn. 273.
Canoe Camp, 150 ft.
Distrib. Malaya.

LYCOPODIUM CERNUUM, Linn. Sp. Pl. ed. 2, 1566.
Camps I, VI *a*, VI *b*, and VI *c*, 700 to 5500 ft.
Distrib. Common all over the tropics.

Lycopodium casuarinoides, Spring, Monogr. i. 94.
Camp VI *c*, 5500 ft.
Distrib. Indo-Malaya.

Lycopodium carolinianum, Linn. Sp. Pl. ed. 2, 1567.
Camp VI *a*, 3100 ft.
Distrib. North and South America, Africa, Ceylon, Malaya, Tasmania.

Selaginella canaliculata, Baker, in Journ. Bot. xxiii. (1885) 21.
Canoe Camp, 150 ft., and Camp VI *a*, 3100 ft.
Distrib. Indo-Malaya.

Selaginella atroviridis, Spring, Monogr. ii. 124.
Camps I and III to IV, 700 to 2500 ft.
Distrib. India, Malaya, and China.

Selaginella Wallichii, Spring, Monogr. ii. 143.
Camp I, 700 ft.; Canoe Camp, 150 ft.; and Camp VI *a*, 3100 ft.
Distrib. Indo-Malaya.

Psilotum complanatum, Sw. Syn. Fil. 188, 414.
Camp III, 2500 ft.; Camp VI *b*, 3900 ft.
Distrib. Tropics of both hemispheres.

EQUISETACEÆ.

(By H. N. Ridley.)

Equisetum debile, Roxb. in Vauch. Monogr. 387.
Camps XI to XII, 8300 to 11,000 ft.
Distrib. Indo-Malaya and Polynesia.

FUNGI.

(By G. Massee.)

Polystictus affinis, Nees, Fl. Jav. p. 18, t. 4. fig. 1.
Canoe Camp, 500 ft. A small specimen.
Distrib. Malaya, Australia, and Brazil.

Ustilago montaniensis, Ell. & Everh. in Journ. Myc. vi. (1890) 119.
Parasitic on *Muehlenbergia arundinella*, Ridl.
Distrib. North America, on other species of *Muehlenbergia*.

Pleogibberella calamia, Berl. et Vogl. in Sacc. Add. Syll. 217.
On young fruit of *Calamus Klossii*, Ridl.
Distrib. India.

PHYSARUM LEUCOPUS, Rost. Monogr. 101.
On the bracts of *Tapeinocheilus.* New to New Guinea.
Distrib. England, North and South America.

LACHNOCLADIUM RAMEALE, Berk. et Broome, in Journ. Linn. Soc., Bot. xiv. (1873) 67.
Camp VI *b*, 3900 ft.
Distrib. Ceylon, Australia.

LICHENS.
(By A. D. COTTON.)

RICASOLIA SCHAERERI, Nyl. Syn. 367.
Camp VI *b*, 3900 ft.

PELTIGERA CANINA, Willd. Fl. Berol. Prodr. 347 (1787); Hoffm. Fl. Germ. ii. 106 (1795).
Camps XI to XII, 8070 to 11,000 ft.

PHYSCIA LEUCOMELA, Michx. Fl. Bor.-Amer. ii. 326.
Camps VII to VIII, 3580 to 5000 ft.

DICHÆNA SERICEUM, Mont. in Bél. Voy. Ind. Or., Crypt. 155.
Camps IX to X, 5600 to 6400 ft.

EXPLANATION OF THE PLATES.

PLATE 1.

Fig. 1. *Drimys vaccinioides*, Ridl., whole plant, natural size.
2. „ „ leaves. × 4.
3. „ „ flower. × 6.
4. „ „ stamens. × 12.
5. „ „ section of flower. × 8.
6. „ „ pistil. × 12.
7. *Papuzilla minutiflora*, Ridl., whole plant, natural size.
8. „ „ raceme. × 6.
9. „ „ flower. × 12.
10. „ „ stamen. × 20.
11. „ „ pistil. × 20.
12. „ „ fruit. × 6.
13. „ „ the same in section. × 6.
14. „ „ embryo. × 12.
15. *Saurauia eximia*, Ridl., branch, natural size.
16. „ „ calyx. × 2.
17. „ „ stamens. × 3.
18. „ „ pistil. × 3.
19. „ „ the same in section. × 3.

Fig. 20. *Terminthodia oppositifolia*, Ridl., spray, natural size.
21. " " flower. × 12.
22. " " the same reversed to show calyx. × 12.
23. " " stamens and disc. × 24.
24. " " pistil. × 24.
25. " " capsule. × 4.
26. " " carpels with seed. × 8.
27. " " seed. × 8.

Plate 2.

Fig. 28. *Medinilla myrtiformis*, var. *papuana*, Bak. fil., branch, natural size.
29. " " " branch, natural size.
30. " " " petal. × 4.
31. " " " stamen. × 6.
32. " " " ovary. × 2.
33. " " " the same in section. × 4.
34. *Otanthera novo-guineensis*, Bak. fil., branch, natural size.
35. " " flower. × 3.
36. " " bract. × 2.
37. " " petal. × 3.
38. " " stamen. × 6.
39. " " calyx and ovary in section. × 6.
40. *Medinilla rubrovenia*, Bak. fil., branch, natural size.
41. " " flower. × 3.
42. " " stamen. × 6.
43. " " ovary and calyx in section. × 6.

Plate 3.

Fig. 44. *Medinilla tenuipedicellata*, Bak. fil., branch, natural size.
45. " " flower. × 3.
46. " " stamen. × 6.
47. " " ovary and calyx, in section. × 6.
48. *Pyrsonota calophylla*, Ridl., spray, natural size.
49. " " raceme. × 3.
50. " " flower. × 6.
51. " " stamens. × 12.
52. " " pistil. × 24.
53. " " the same, in longitudinal section. × 24.
54. " " the same, in transverse section. × 24.
55. See Plate 4.
56. *Cremnobates ilicina*, Ridl., stipules. × 4.
57. " " flower and bract. × 4.
58. " " flower. × 12.
59. " " petal. × 16.
60. " " stamens and disc. × 24.
61. " " pistil. × 16.
62. " " fruit in longitudinal section. × 2.
63. " " the same, transverse section. × 2.

PLATE 4.

Fig. 55. *Cremnobates ilicina*, Ridl., spray, natural size.
64. *Pilea alpestris*, Ridl., spray, natural size.
65. „ „ leaves and stipules, enlarged.
66. „ „ leaf and stipules. × 8.
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68. „ „ flower. × 14.
69. „ „ the same, side view. × 14.
70. See Plate 6.
71. *Giulianetta disticha*, Ridl., leaf. × 2.

PLATE 5.

Fig. 74. *Thylacophora pogonocheilus*, Ridl., leaf and fruit spikes, half natural size.

PLATE 6.

Fig. 70. *Giulianetta disticha*, Ridl., plant, natural size.
71. See Plate 4.
72. *Giulianetta disticha*, Ridl., flower and bract, natural size.
73. „ „ flower. × 2.
74. See Plate 5.
75. *Thylacophora pogonocheilus*, Ridl., raceme, natural size.
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79. „ „ placenta. × 2.
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81. „ „ seed from above. × 4.
82. „ „ seed in section. × 6.

A MAP illustrating Mr. A. F. R. Wollaston's route in Dutch New Guinea will be found in 'The Geographical Journal' for March, 1914.

CORRECTIONS AND ADDITIONS.

Page				
12,	line	7	from bottom, read	DRIMYS ELONGATA, Ridl. in Hook. Ic. Pl. t. 3051.
12	,,	2	,, ,,	for *Petala* 5, read *Petala* 6.
13	,,	17,	read	DRIMYS VACCINIOIDES, Ridl., sp. nov. (Pl. **1**. figs. 1–6.)
14	,,	8,	,,	SAURAUIA EXIMIA, Ridl., sp. nov. (Pl. **1**. figs. 15–19.)
17	,,	10,	,,	PAPUZILLA MINUTIFLORA, Ridl., sp. nov. (Pl. **1**. figs. 7–14.)
24	,,	19,	,,	TERMINTHODIA OPPOSITIFOLIA, Ridl., sp. nov. (Pl. **1**. figs. 20–27.)
26	,,	19,	,,	AGLAIA RUBRA, Ridl. in Hook. Ic. Pl. t. 3052.
40	,,	13,	,,	PYRSONOTA CALOPHYLLA, Ridl., sp. nov. (Pl. **3**. figs. 48–54.)
41	,,	22	,.	CREMNOBATES ILICINA, Ridl., sp. nov. (Pl. **3**. figs. 56–63; Pl. **4**. fig. 55.)
74	,,	25	,,	TIMONIUS VACCINIOIDES, Wernham, in Hook. Ic. Pl. t. 3054.
84	,,	1	,,	VITTADINIA DISTICHA, S. Moore, in Hook. Ic. Pl. t. 3055.
99	,,	28	,,	MISCHOPLEURA, Wernham, in Hook. Ic. Pl. t. 3059.
100	,,	7	,,	MISCHOPLEURA OVALIFOLIA, Wernham (l. c.).
100	,,	17	,,	MISCHOPLEURA RIDLEYANA, Wernham (l. c.).
110	,,	10	,,	NEOWOLLASTONIA, Wernham, in Hook. Ic. Pl. t. 3060.
110	,,	25	,,	NEOWOLLASTONIA TABERNÆMONTANOIDES, Wernham (l. c.).
119	,,	19	,,	SOLANUM PERANOMALUM, Wernham, in Hook. Ic. Pl. t. 3062.
152	,,	1	,,	PILEA ALPESTRIS, Ridl., sp. nov. (Pl. **4**. figs. 64–69.)
210	,,	5	,,	THYLACOPHORA POGONOCHEILUS, Ridl., sp. nov. (Pl. **5**. fig. 74; Pl. **6**. figs. 75–82.)

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